CCD-FX700E
RMT-509

SERVICE MANUAL

AEP Model
UK Model
E Model
Australian Model

Hi-Fi Stereo
video Hi8
Handycam
SONY

Remote commander is available as a unit. But as individual parts the battery case lid of commander is only avaiable.

video Hi8
Handycam

A MECHANISM

For MECHANISM ADJUSTMENTS, refer to the "8 mm VIdeo MECHANICAL ADJUSTMENT MANUAL Ⅳ" (9-973-199-11).

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Cassette type	8 mm video format cassette
Tape speed	SP mode: Approx. 2.0051 cm/s LP mode: Approx. 1.0058 cm/s
Recording/Playback time	SP mode: 1 h 30 min (P5-90) LP mode: 3 h (P5-90)
Fast forward/rewind time	Approx. 6 min 30 s (P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 10 × power zoom lens f=6.1 to 61 mm ($^1/_4$ to $2^1/_2$ inches) Approx. 44 to 440 mm ($1^3/_4$ to $17^3/_8$ inches) converted into the focal length of a 35-mm still camera. F 1.6 to 2.4 Filter diameter: 37 mm ($1^1/_2$ inches) TTL autofocus system inner focus wide macro system
Colour temperature	AUTO
Minimum illumination	3 lx
Illumination range	3 lx to 100,000 lx (0.3 to 9294 footcandles)
Recommended illumination	More than 100 lx (9 footcandles)
Aperture correction	Automatic With backlight adjustment

Input and output connector

S-VIDEO input/output (AEP/UK model: Output only)	4-pin mini DIN Luminance signal 1 Vp-p, 75 Ω, unbalanced, sync negative, Chrominance signal 0.3 Vp-p, 75Ω , unbalanced unbalanced
Video output	Phono jack 1 Vp-p, 75 Ω, unbalanced, sync negative
Audio output	Phono jack (L, R) –7.5 dBs, (at load impedance 47 kΩ) Impedance less than 1 kΩ

— Continued on next page —

MICROFILM

Hi8 VIDEO CAMERA RECORDER

SONY®

RFU DC OUT	Special minijack, 5 V DC
Headphone jack	Stereo minijack, 8 Ω impedance
Remote ◖ jack	Stereo mini-minijack
MIC jack	Stereo minijack, –66 dBs, low impedance with 2.5 to 3 V DC output, impedance 6.8 kΩ
Microphone power output jack	Special minijack, 5 V DC

General

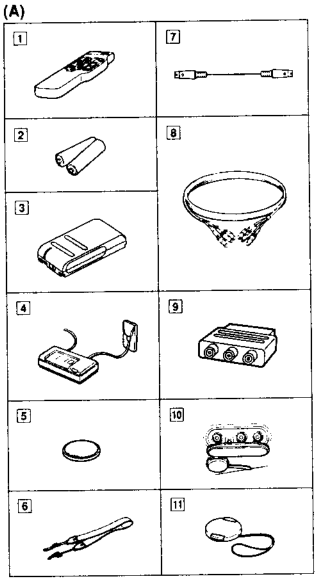
Power requirements	On battery mounting surface 6.0 V (battery pack) 7.5 V (AC power adaptor) 9.0 V (alkaline batteries)
Power consumption	6.5 W (camera recording) including the viewfinder
Installation	Vertically, horizontally
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	–20°C to +60°C (–4°F to +140°F)
Dimensions	Approx. 118 × 112 × 260 mm (w/h/d) ($4\frac{3}{4}$ × $4\frac{1}{2}$ × $10\frac{1}{4}$ inches.)
Mass	Approx. 930 g (2 lb 1 oz) excluding the battery pack, lithium battery, cassette, lens cap, jack cover and shoulder strap Approx. 1150 g (2 lb 9 oz) including the battery pack NP-55H, lithium battery CR2025, cassette P5-90, lens cap, jack cover and shoulder strap
Microphone	Electret condenser microphone, uni-directional, stereo type

Wireless Remote Commander

Remote control system	Infrared control
Command mode	VTR 2
Power requirements	3 V DC, 2 R6 (size AA) batteries
Dimensions	Approx. 48 × 19 × 130 mm (w/h/d) ($1\frac{15}{16}$ × $\frac{3}{4}$ × $5\frac{1}{8}$ inches)
Mass	Approx. 50 g (1.8 oz) (excluding batteries)

Design and specifications are subject to change without notice.

(A)



Supplied Accessories

Confirm that following accessories have been supplied with your camcorder.
For details on the use of each accessory, refer to pages indicated in the parenthesis.

(A)

- 1 **Remote Commander (1) (p. 8)**
- 2 **R6 (size AA) battery for Remote Commander (2) (p. 9)**
- 3 **Battery pack NP-55H (1) (p. 10)**
- 4 **AC power adaptor AC-V35/V35A (1) (p. 10, 13)**
- 5 **Lithium battery CR2025 (1) (p. 18)**
- 6 **Shoulder strap (1) (p. 6)**
- 7 **S video connecting cable (1) (p. 46)**
- 8 **A/V connecting cable (1) (p. 46, 47)**
- 9 **21-pin adaptor (1) (p. 47)**
- 10 **Jack cover (1)** (attached to the camcorder)
- 11 **Lens cap (1)** (attached to the camcorder) (p. 25)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

TABLE OF CONTENTS

Section Title Page

SERVICE NOTE

Semiconductor for Correction List Display ······ 6
Parts Location Diagram Related to Power Supply ······ 6
Semiconductor Location ······ 6
Head Cleaning ······ 6

1. GENERAL

Identifying the Parts ······ 7
Connecting the Power Sources ······ 10
Using the Best out of the Battery Pack ······ 12
Setting the Date and Time ······ 14
Inserting a Tape ······ 16
Adjusting the Viewfinder Lens ······ 16
Recording a Picture Using Automatic Adjustments ······ 17
Recording the Date or Time ······ 18
Putting an Age on Your Tape ······ 19
Zooming ······ 19
Close-up (Macro) ······ 19
Checking the Recorded Picture in the Viewfinder (EDITSEARCH) ······ 20
Re-recording a Picture in the Middle of a Recorded Tape (Insert Recording) ······ 21
Making Manual Adjustments ······ 22
Manual Focusing ······ 22
Fixing the Focus to the Object ······ 23
Adjusting the White Balance ······ 23
Using the High-speed Shutter ······ 24
Adjusting the Exposure ······ 24
Using Program AE ······ 25
Fade-in and Fade-out ······ 25
Superimposing a Title ······ 26
Connections for Playback ······ 28
Playing Back a Tape ······ 29
Using the Tape Counter ······ 30
Editing onto Another VTR ······ 31
Selecting Cassette Types ······ 32
Hints for Better Shooting ······ 32
Maintenance and Precautions ······ 33
Using your Camcorder Abroad ······ 34
Indicators in the Viewfinder and the Display Window ······ 35

Section Title Page

2. DISASSEMBLY

2-1. Removal of Variable Resistor ······ 36
2-2. Removal of Cabinet (Upper) Assembly ······ 36
2-3. Removal of Cassette LID Assembly ······ 36
2-4. Removal of Cabinet (L) Assembly ······ 37
2-5. Removal of Jack Board Block Assembly (EJ-26 Board, SJ-11 Board, JK-83 Board) ······ 37
2-6. Removal of ZB-1 and SW-202 Boards ······ 38
2-7. Removal of Cabinet (R) Assembly ······ 38
2-8. Removal of Control Switch Block Assembly ······ 39
2-9. Removal of EVF Assembly (VF-44 Board) (TYPE A), (VF-51 Board) (TYPE B) ······ 39
2-10. Removal of LS LID Assembly ······ 40
2-11. Removal of PS-298 Board ······ 40
2-12. Removal of Zoom Lens Assembly ······ 41
2-13. Removal of VI-113 and CS-33 Boards ······ 41
2-14. Removal of VK-23 Board and VTR Holder Assembly ······ 42
2-15. Removal of RP-138 and SL-24 Boards ······ 42
2-16. Internal Views ······ 43

3. DIAGRAMS

3-1. Circuit Boards Location ······ 44
3-2. Overall Block Diagram ······ 45
3-3. Camera (1) Block Diagram ······ 49
3-4. Camera Microprocessor Pin Function (IC709 on CS-33 Board: CXP80624-419Q) ······ 53
3-5. Camera (2) Block Diagram ······ 55
3-6. Video (1) Block Diagram ······ 57
3-7. Video (2) Block Diagram ······ 61
3-8. Servo Block Diagram ······ 64
3-9. System Control Block Diagram ······ 67
3-10. Mechanism Control Microprocessor Pin Function (IC503 on CS-33 Board: CXP80624A-016Q) ······ 70
3-11. Mode Control Microprocessor Pin Function (IC506 on CS-33 Board: μPD75316GF-355-3B9) ······ 73
3-12. Interface ······ 75
  3-12-1. System Control – Video/Audio Block Interface (CS-33 Board) ······ 75
  3-12-2. System Control – Servo Block Interface ······ 77
3-13. Audio Block Diagram ······ 81
3-14. EVF Block Diagram ······ 85
3-15. Power Block Diagram ······ 88

Section Title Page

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. Frame Schematic Diagram ········ 91
4-2. Printed Wiring Boards and Schematic Diagrams ········ 94
- CD-78 Board ········ 95
- CS-33 (Camera, Lens Control, Servo/System Control, Audio, Connector Block) Board ········ 100
- CS-33 (Camera) Board ········ 103
- CS-33 (Lens Control), FP-488 Boards ········ 109
- CS-33 (Servo/System Control) Board ········ 113
- CS-33 (Audio) Board ········ 117
- CS-33 (Connector Block) Board ········ 121
- RP-138 Board ········ 125
- VI-113 Board ········ 129
- MA-131, VK-23, EJ-26, SJ-11, ZB-1, JK-83, SW-202 Boards ········ 145
- SL-24, LS-33 Boards ········ 153
- VF-44 Board ········ 159
- VF-51 Board ········ 163
- PS-298 Board ········ 167

4-3. Semiconductors ········ 172

5. EXPLODED VIEWS

5-1. Cabinet (Upper), (L) Assemblies ········ 173
5-2. Cabinet (R), EVF Assemblies ········ 174
5-3. Main Board Assembly ········ 175
5-4. Cassette Compartment Assembly ········ 176
5-5. LS Chassis Assembly ········ 177
5-6. Mechanism Chassis Assembly (1) ········ 178
5-7. Mechanism Chassis Assembly (2) ········ 179
5-8. Zoom Lens Assembly (VCL-6110WB), (VCL-6110WD) ········ 180

6. ELECTRICAL PARTS LIST ········ 181

HARDWARE LIST ········ 208

Section Title Page

7. CAMERA SECTION ADJUSTMENT

7-1. Preparations Before Adjustment (Camera Section) ········ 209
7-1-1. List of Service Tools ········ 209
7-1-2. Preparations ········ 211
7-1-3. Precautions ········ 212
1. Switch Settings ········ 212
2. Adjustment procedure ········ 212
3. Subject ········ 212
7-1-4. Adjusting Remote Control Unit ········ 213
1. Using the Adjusting Remote Control Unit ········ 213
2. Precautions upon Using the Adjusting Remote Control Unit ········ 213
7-1-5. Page F Address List ········ 214
7-1-6. 6 Page, 1 Page Address List ········ 220
7-1-7. Adjustment Connector ········ 221
7-1-8. Data Processing ········ 221
7-2. Camera System Adjustment ········ 222
1. Power Supply Voltage Check (PS-298 board) ········ 222
2. Page F Data Initialization ········ 222
3. Page F Data Modification ········ 222
4. 28 MHz Original Oscillation Adjustment (CS-33 board) ········ 223
5. V SUB Adjustment (CS-33 board) ········ 223
6. VRG Adjustment (CS-33 board) ········ 223
7. CCD Imager Correction Data Write ········ 223
8. HALL Adjustment ········ 224
9. Flange Back Adjustment ········ 225
10. Flange Back Check ········ 225
11. SYNC Level Adjustment (CS-33 board) ········ 226
12. BURST Level Adjustment (CS-33 board) ········ 226
13. A/D Offset Adjustment ········ 227
14. Carrier Balance Adjustment ········ 227
15. Picture Frame Setting ········ 228
16. IRIS Level Adjustment (CS-33 board) ········ 228
17. MAX GAIN Adjustment (CS-33 board) ········ 229
18. IRIS IN/OUT Adjustment ········ 229
19. Pre-white Balance Adjustment ········ 230
20. Color Reproduction Adjustment ········ 231
21. Auto White Balance Preset Adjustment ········ 232
22. Auto White Balance Adjustment ········ 232
23. White Balance Check ········ 233
24. Linear Matrix Adjustment ········ 234
25. Title Color Reproduction Adjustment ········ 235
26. VIDEO OUT Level Check ········ 235
7-3. Electronic Viewfinder System Adjustment (VF-44 Board) ········ 236
7-3-1. Horizontal Tilt Adjustment ········ 236
7-3-2. Centering Adjustment ········ 236
7-3-3. AFC Adjustment (VF-44 Board) ········ 236
7-3-4. Horizontal Amplitude Adjustment (VF-44 Board) ········ 237
7-3-5. Vertical Amplitude Adjustment (VF-44 Board) ········ 237
7-3-6. Focus Adjustment (VF-44 Board) ········ 237
7-3-7. Brightness, Contrast Adjustments (VF-44 Board) ········ 237
7-4. Arrangement Diagram for Adjustment Parts ········ 238

Section Title Page

8. MECHANICAL SECTION ADJUSTMENT

8-1. Setting the Track Shift Mode ········ 243
8-2. Preparation for Adjustment ········ 243
8-3. Mechanism Control Computer Version ········ 243
8-4. Mode Control Computer Version ········ 243

9. VIDEO SECTION ADJUSTMENT

9-1. Preparations Before Adjustment ········ 244
  9-1-1. Equipments to be used ········ 244
  9-1-2. Precautions upon Adjustment ········ 244
  9-1-3. Connecting the Equipments ········ 245
  9-1-4. Checking the Input Signals ········ 247
    1. For S VIDEO Input ········ 247
    2. For VIDEO Input ········ 247
  9-1-5. Alignment Tape ········ 248
  9-1-6. Input/Output Level and Impedance ········ 249
  9-1-7. Record Mode (Normal/Hi8) Switchover ········ 249
  9-1-8. Service Mode ········ 250
    1. Setting the Service Mode ········ 250
    2. Types of Self-diagnostic Feature ········ 252
    3. Page D Write Protect ········ 252
    4. Page F Write Protect ········ 252
    5. Destination Flag ········ 252
    6. Test Mode Setting ········ 253
    7. Emergency code ········ 253
    8. Emergency mode ········ 254
    9. Bit value Discrimination ········ 254
    10. Check of Power Switch, Tape Distinction Switch, etc. ········ 255
    11. RECOG SW Check ········ 255
    12. Individual Operations of the Drum, Capstan, and Loading Motor ········ 256
    13. Mode Switch Check ········ 256
    14. Mode control micro processor key matrix Check ········ 257
    15. Wireless Remote Control Unit Reception Content Check ········ 257
    16. LCD, LED Check ········ 257
    17. Page D address List ········ 258
    18. How to Set the REC Mode in the Model without REC Switch ········ 260
9-2. Power System Adjustments ········ 261
    1. Oscillator Frequency Check (PS-298 board) ········ 261
    2. Power Voltage Check (PS-298 board) ········ 261
9-3. System Control System Adjustments ········ 261
    1. Page D Initial Value Input ········ 261
    2. Battery End Adjustment ········ 262
    3. Battery Down Check ········ 262

Section Title Page

9-4. Servo System Adjustments ········ 263
    1. Switching Position Adjustment (CS-33 board) ········ 263
    2. SLOW Noise Position Adjustment ········ 263
    3. STILL Noise Position Adjustment ········ 264
9-5. Video Adjustments ········ 264
    1. Playback Frequency Characteristics Adjustment (RP-138 board) ········ 265
    2. Flying Erase Check (VI-113 board) ········ 265
    3. VXO Oscillation Frequency Check (VI-113 board) ········ 265
    4. SYNC AGC Level Adjustment (VI-113 board) ········ 266
    5. IR Adjustment (VI-113 board) ········ 266
    6. Chroma Comb Filter Adjustment (VI-113 board) ········ 267
    7. Emphasis input level Adjustment (VI-113 board) ········ 267
    8. PB Y Level Adjustment (VI-113 board) ········ 268
    9. PB LINE OUT Level Adjustment ········ 268
    10. Normal Mode Y FM Carrier Frequency Adjustment (VI-113 board) ········ 269
    11. Normal Mode Y FM Deviation Adjustment (VI-113 board) ········ 269
    12. Hi8 Mode Y FM Carrier Frequency Adjustment (VI-113 board) ········ 270
    13. Hi8 Mode Y FM Deviation Adjustment (VI-113 board) ········ 270
    14. Chroma Emphasis Adjustment (VI-113 board) ········ 271
    15. REC C RF Level Adjustment (VI-113 board) ········ 271
    16. REC Y Level Adjustment (CS-33 board) ········ 272
    17. REC L CONT Adjustment (CS-33 board) ········ 273
    18. REC ATF Level Checking (CS-33 board) ········ 274
    19. Playback Title Color Reproduction Adjustment ········ 274
    20. Playback Title Y Level Adjustment ········ 275
    21. Playback Title Edge Y Level Adjustment ········ 276
9-6. Audio System Adjustment ········ 277
    1. 1.5 MHz Carrier Frequency Check (CS-33 board) ········ 278
    2. 1.7 MHz Carrier Frequency Check (CS-33 board) ········ 278
    3. 1.5 MHz Record Level Check (CS-33 board) ········ 278
    4. 1.7 MHz Record Level Check (CS-33 board) ········ 278
    5. CAM E-E Output Level Check ········ 279
    6. REC Matrix L-R Adjustment (CS-33 board) ········ 279
    7. REC Matrix L+R Check (CS-33 board) ········ 279
    8. IR Adjustment (CS-33 board) ········ 280
    9. 1.5 MHz Deviation Adjustment ········ 280
    10. 1.7 MHz Deviation Adjustment (CS-33 board) ········ 280
    11. PB Matrix L Adjustment (CS-33 board) ········ 281
    12. PB Matrix R Check (CS-33 board) ········ 281
    13. Overall Level Characteristic, Distortion Check ········ 281
    14. Separation Check ········ 282
    15. Overall Noise Level Check ········ 282
9-7. Arrangement Diagram for Adjustment Parts ········ 284

There is the color reproduction standard frame at the back of the book.

SERVICE NOTE

[SEMICONDUCTOR FOR CORRECTION LIST DISPLAY]

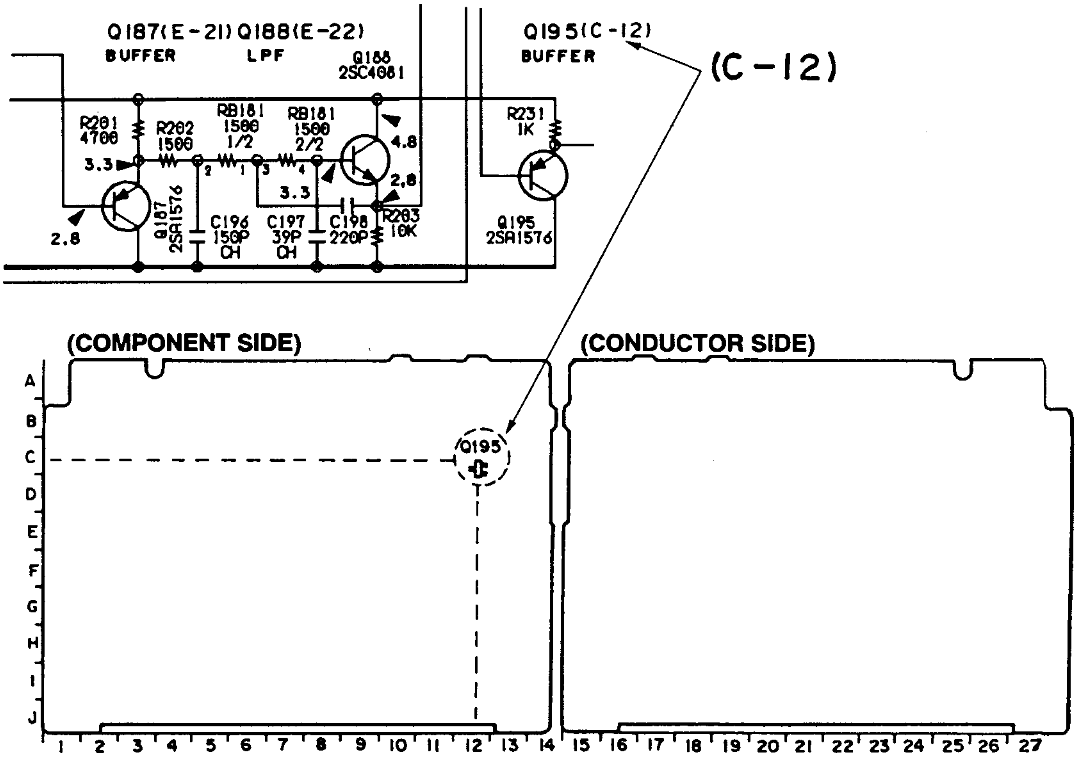
Part code and part name of the semiconductor for correction of the print board is discribed in the space of each print figure. Use this list when ordering parts.

[PARTS LOCATION DIAGRAM RELATED TO POWER SUPPLY]

The parts location diagram for the power supply which are often checked and replaced when repairing the fuse and IC link and so on. (See pages 100, 116, 167, 169.)
This diagram is useful for repair.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red as shown below. This enables to find the location on the board easily when servicing.


Q187(E-21) Q188(E-22)
BUFFER
LPF
Q188
2SC4081
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
3.3
4.8
2.8
3.3
2.8
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
Q195(C-12)
BUFFER
R231
1K
Q195
2SA1576
(C-12)
(COMPONENT SIDE)
(CONDUCTOR SIDE)
Q195
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[HEAD CLEANING]

After an extended period of use the video image may become indistinct or may not appear at all during playback of a tape. The cause of this usually are dirty video heads. For remedy, cleaning of the heads is required.

Check for Head Clogs During Recording

① Use a blank tape, record a short section, then press the stop button to stop.
② Set to recording mode again.
③ If the [✲] mark is flashing in the viewfinder at this time, head clogs are occurred.

Check During Playback of a Tape

① Play back a pre-recorded tape and display the image on a TV screen.
② If there is no sound and the image is unstable, no image appears on the screen, or tape transport is unstable, head clogs are occurred.

Remedy

[Cleaning method using a cleaning tape]

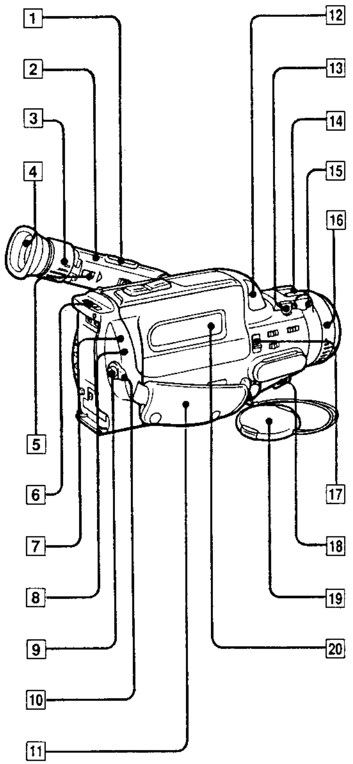
- Use the Cleaning Tape. (Please follow the instructions attached to the cleaning tape.)

SECTION 1
GENERAL

This section is extracted from instruction manual.

Identifying the Parts

(B-1)



For details on the use of each part, refer to the pages indicated in the parenthesis.

(B-1)

1 **EDITSEARCH (and ⊜ recording review) button (30, 31)**

2 **Viewfinder (23, 58, 60)**

3 **Viewfinder adjustment ring (23)**

4 **Eyecup**

5 **RELEASE knob (58)**

6 **POWER switch**
CAMERA: for camera recording
PLAYER: for playing back or editing tapes
OFF: power off

7 **ᑕ *REMOTE control connector (stereo mini-minijack) (33)**

8 **∩ (headphones) jack (minijack) (31)**

9 **START/STOP button (25)**

10 **STANDBY switch (23, 25)**

11 **Grip strap (25)**

12 **Stereo built-in microphone**

13 **MIC jack (PLUG IN POWER) (stereo mini-jack) (33)**

14 **Accessory shoe (33)**

15 **Remote control sensor (9)**

16 **Focus ring (35)**

17 **EJECT (cassette eject) knob (22)**

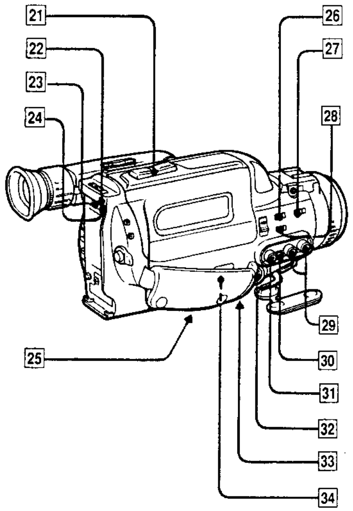
18 **Shoulder strap hook (6)**

19 **Lens cap (25)**

20 **Cassette holder (22)**

***About the ᑕ (LANC)**
ᑕ (LANC) stands for Local Application Control Bus System. The ᑕ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

(B-2)



Identifying the Parts

(B-2)

21 **Power zoom (MACRO) button (29)**

22 **Camera recording/battery lamp**

23 **▣ REMOTE COMMANDER ON/OFF switch (8)**

24 **BEEP ON/OFF switch (24)**

25 **Stand (26)**

26 **Hi8 AUTO/OFF switch (24)**

27 **Hi-Fi SOUND switch (50)**

28 **REC MODE (recording mode)/EDIT switch (25, 52)**

Mode	Recording	Playback	Editing
Setting	EDIT SP LP ↔	EDIT SP LP ←	EDIT SP LP →
Function	Recording mode switch	EDIT switch	

29 **AUDIO (L, R) output jacks (phono jack) (46, 47)**

30 **RFU DC OUT (RFU adaptor DC output) jack (special minijack)**

31 **VIDEO output jack (phono jack) (47)**

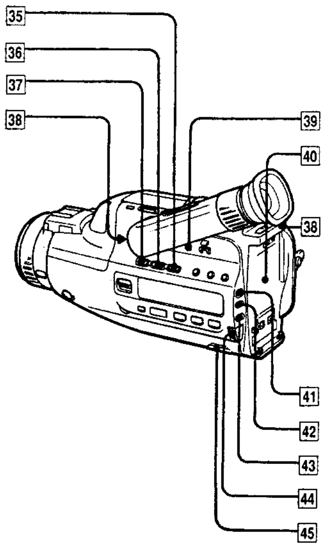
32 **S VIDEO output jack (46)**

33 **Tripod receptacle**

34 **Lithium battery compartment (18)**

Identifying the Parts

(B-3)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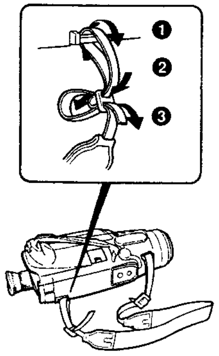
(B-4)



(B-3)

[35] **AGE (EVENT) button (20, 28)**

[36] **TIME (NEXT) button (19, 20, 27)**

[37] **DATE (+) button (19, 20, 27)**

[38] **Camera recording/battery lamps**

[39] **START/STOP button (26)**

[40] **Battery mounting surface (11)**

[41] **MEMORY button (43)**

[42] **COLOR/MODE button (43, 45)**

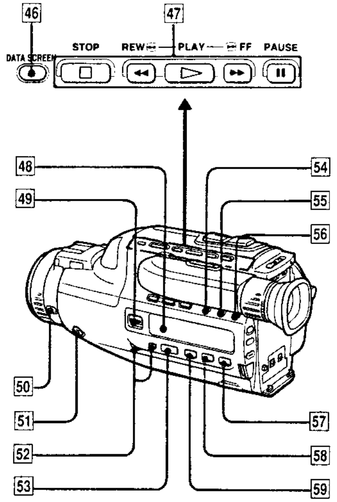
[43] **SUPERIMPOSE ON/OFF button (43, 45)**

[44] **BATT (battery eject) knob (11)**

[45] **Shoulder strap hook**
Attach the supplied shoulder strap. **(B-4)**

Identifying the Parts

(B-5)


46
47
DATA SCREEN
STOP
REW
PLAY
FF
PAUSE
48
49
50
51
52
53
54
55
56
57
58
59

(B-5)

[46] **DATA SCREEN button (48)**

[47] **Tape transport buttons (48, 49)**
▷ PLAY (playback)
▶▶ FF (fast-forward)
◀◀ REW (rewind)
□ STOP (stop)
II PAUSE (pause)

[48] **Display window (61)**

[49] **AUTO LOCK switch (35, 37, 38, 39, 40)**

[50] **PUSH FOCUS HOLD button (36)**

[51] **FADER button (41)**

[52] **EXPOSURE ON/OFF button and dial (39)**

[53] **PROGRAM AE button (40)**

[54] **COUNTER RESET button (32, 51)**

[55] **ZERO MEM (memory) button (32, 51)**

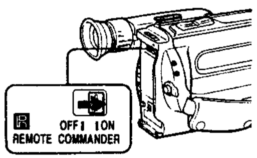
[56] **TAPE/BATT (battery) CHECK button (12, 26)**

[57] **WHT BAL (white balance) button (37)**

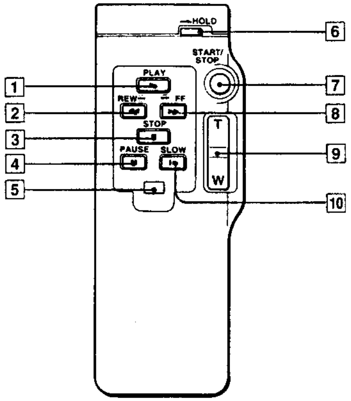
[58] **FOCUS button (35)**

[59] **SHUTTER SPEED button (38)**

(B-6)



(B-7)



Wireless Remote Commander

You can control recording with the camera and playing back from a distance. The buttons on the Remote Commander with the same name or mark as those on the camcorder have the same function.

When you use the Commander (B-6)
Be sure to insert the supplied batteries into it (page 9) and to set the ▣ REMOTE COMMANDER switch on the camcorder to "ON". For details, refer to the pages indicated in the parenthesis.

(B-7)

1 ▷ PLAY (play back) button (48, 49)

2 ◀◀ REW (rewind) button (48, 49)

3 □ STOP button (48)

4 ll PAUSE button (49)

5 DATA SCREEN button (48)

6 HOLD switch* (49)

7 START/STOP button (25)

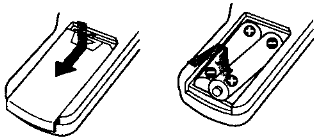
8 FF ▶▶ (fast forward) button (48, 49)

9 Power zoom button (29)

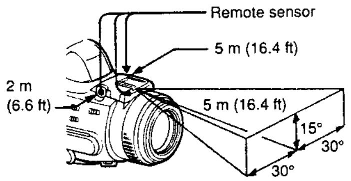
10 I▶ SLOW (slow playback) button* (49)

Note
The * indicates the functions which are operable only with the Commander.

(B-8)



(B-9)



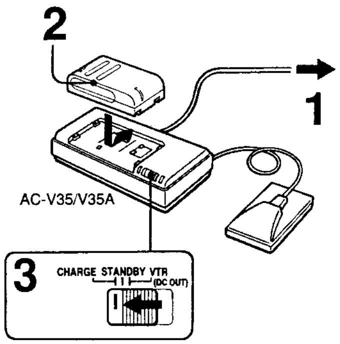
Inserting batteries (B-8)
Insert two R6 (size AA) batteries with correct polarity.

Remote controllable area (B-9)
Aim the Commander at the remote sensor on the camcorder. The illustration shows the approximate maximum distance and angle for remote control.

Notes on batteries
- With normal operation, batteries will last for about six months.
- If you do not use the Commander for a long period, remove the batteries to avoid possible damage from battery leakage.

Notes on the Remote Commander
- **Do not use the remote sensor in a strongly lighted room, since it may not work properly under such condition.**
- Be sure that there is no obstacle between the remote sensor and Commander.
- **The command mode of the Commander is VTR2. Avoid using the Sony VTRs with the same command mode at the same time.**

(C-1)



Preparing your camcorder 1

Connecting the Power Sources

First, Choose the Power Source.

For details, see the operation manual of the accessory you want to use.

Place	Power source	Accessory to be used
Outdoors	Battery pack	NP-55H (supplied), NP-55, NP-66H, NP-77, NP-77H or NP-77HD
	Alkaline batteries	Battery case EBP-77
Indoors	House current	AC power adaptor AC-V35/V35A (supplied), AC-V30, AC-V65A or AC-S10
In the car	12 V or 24 V car battery	DC pack DCP-77, car battery charger DC-S10 or AC power adaptor AC-V55 and car battery cord DCC-16AE

Using the Battery Pack

Step 1

Charge the battery pack. (C-1)
A new battery pack is not charged.

1 **Plug the AC power adaptor into a wall outlet.**

2 **Attach the battery pack to the AC power adaptor.**
- — Align the side of the battery pack with the line on the AC power adaptor.
- — Push the battery pack down and slide it in the direction of the arrow.

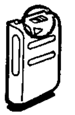
3 **Set the CHARGE/VTR switch on the AC adaptor to CHARGE.**
When charging is completed, the charge indicator on the AC power adaptor goes out.

	NP-55H (supplied)	NP-77H NP-77HD	NP-77	NP-66H	NP-55
Required charging time*	70	140	120	110	60
Battery life**	55	120	100	80	50

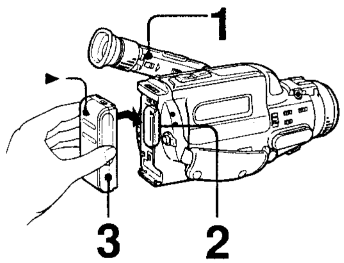
* Approximate time in minutes using AC-V35/V35A

** Approximate time in minutes using fully charged battery pack, continous recording indoors

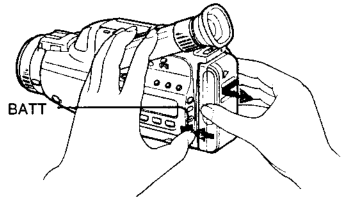
(C-2)



(C-3)



(C-4)



Important!
Use the battery completely before recharging!

Before you recharge the battery, make sure the battery has been used (discharged) completely. Excessive charging may reduce the charging capacity of the battery.

To use up the battery, remove the video cassette, set the POWER switch to CAMERA with the battery attached and leave the camcorder until the ⊂⊐ indicator and a red lamp flash in the viewfinder.

How to use the switch on the battery pack (C-2)
This switch is provided so that you can remember the charging condition. Set the switch to the "no mark" position when charging is completed. Set the switch to the "red mark" position when the battery is used up.

Other options for charging
- AC-S10 AC power adaptor:
  This adaptor has a discharging function.
  It charges the battery pack after ensuring optimum battery capacity by complete discharging.
- DC-S10 car battery charger with discharging function:
  You can charge a battery pack through the cigarette lighter socket.

Step 2

Install the battery pack on the camcorder. (C-3)

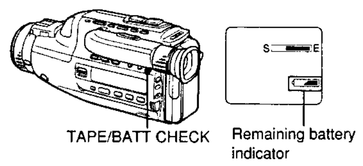
1 **Lift up the viewfinder.**

2 **With the arrow mark (▶) on the battery pack up, align the right side of the battery pack with the white line on the camcorder.**

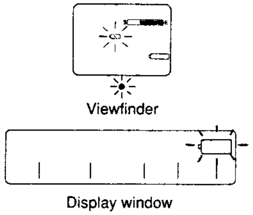
3 **Slide the battery pack to the right.**
Note
Make sure the battery pack is securely installed so that it does not come loose. If the battery is not installed properly, the camcorder does not work.

Removing the battery pack (C-4)
Press the BATT knob in the direction of the arrow, and at the same time, slide out the battery pack to the left.

(C-5)



(C-6)



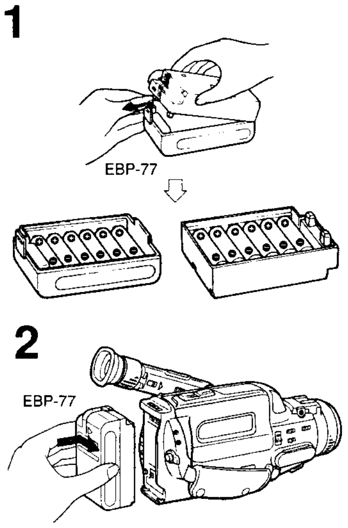
Battery Life Indicator

To check the remaining battery capacity, set the POWER switch to CAMERA, set the STANDBY switch up (see page 25) and press TAPE/BATT CHECK. **(C-5)** The black bar of the remaining battery indicator in the viewfinder and display window shows remaining battery capacity. After the black bar disappears, the ▭ indicator will appear and a red lamp will also flash in the viewfinder. When they flash rapidly, replace the battery pack. **(C-6)**

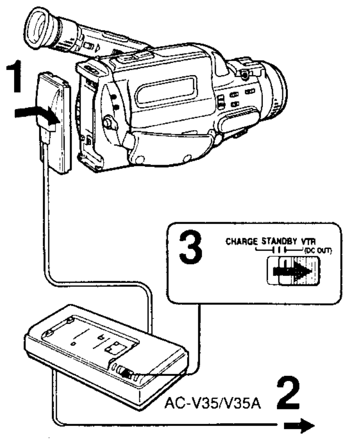
Notes

- The remaining battery indicator appears in the display window when the POWER switch is set to CAMERA or PLAYER with a power source attached.
- Change the battery pack when the black bar of the battery indicator decreases quickly.
- The remaining battery indicator of the camcorder may indicate a different capacity from that on the NP-77HD battery pack. The indicator on the NP-77HD shows more accurate capacity.

(C-7)



(C-8)



Using Alkaline Batteries

(C-7)

Use the EBP-77 battery case and twelve R6 (size AA) alkaline batteries (not supplied).

Note
You cannot use manganese batteries with the battery case.

1. **Insert alkaline batteries into the battery case.**
2. **Align the right side of the battery case with the white line on the camcorder, and slide it in the direction of the arrow.**

Battery life (when using Sony alkaline batteries)
You can continuously record with the EBP-77 for about 2 hours in a room. The batteries will not last as long in cold places.

Removing the battery case
Remove it in the same way as you do with the battery pack. See page 11.

Using Household Current

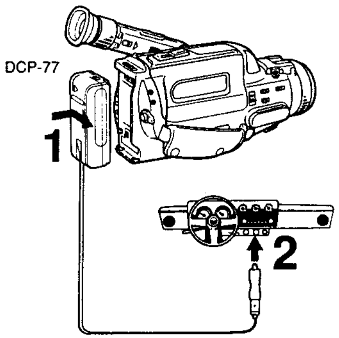
(C-8)

Use the supplied AC-V35/V35A AC power adaptor.

1. **Align the right side of the AC power adaptor's connecting plate with the white line on the camcorder, and slide it in the direction of the arrow.**
2. **Plug the AC power adaptor into the wall outlet.**
3. **Set the CHARGE/VTR switch on the AC power adaptor to VTR.**

Removing the AC power adaptor
Remove it in the same way as you do with the battery pack. See page 11.

(C-9)



Using Car Battery

(C-9)

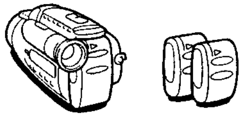
Use the DCP-77 DC pack (not supplied).

1. **Align the right side of the DC pack with the white line on the camcorder, and then push down and slide it in the direction of the arrow.**
2. **Connect the cord of the DC pack to the cigarette lighter socket of a car (12 V or 24 V).**

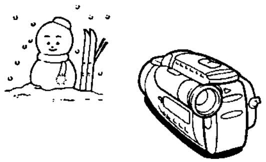
Removing the DC pack
Remove it in the same way as you do with the battery pack. See page 11.

Using the Best out of the Battery Pack

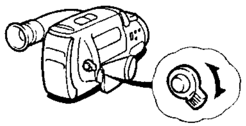
(D-1)



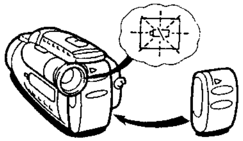
(D-2)



(D-3)



(D-4)



Preparing the Rechargeable Battery Pack

Have sufficient battery pack power to do 2 to 3 times as much recording than you have planned. (D-1)
"Battery life" indicated in the operation manual or catalogue of the camcorder is measured by the continuous recording time at a room temperature with a fully charged battery.

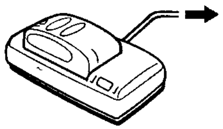
Battery life is shorter in cold environments. (D-2)
Battery efficiency decreases and the battery will be used up more quickly.

Set the STANDBY switch down when not recording to save battery power. A smooth recording can be made while recording is stopped and started again. (D-3)
While positioning the subject or selecting an angle, or looking through the viewfinder lens, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.

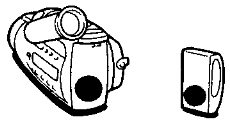
When the Rechargeable Battery Pack Should Be Replaced

While you are recording, the black bar of the remaining battery indicator shows decreasing battery capacity. After the black bar disappears, the ▭ indicator and a red lamp will flash in the viewfinder. (D-4) When they flash rapidly, replace the battery pack.
Turn off the power switch of the camcorder and replace the battery pack.

(D-5)



(D-6)



Notes on Charging

Before using the battery pack, charge it sufficiently. A new battery pack is not charged.

Recharge the battery pack only when it is exhausted. (D-5)

- Make sure to use up the battery before charging.
- If recording is completed before the ⊏⊐ indicator appears in the viewfinder, it is recommended that you remove the tape, set the POWER switch to CAMERA, set the STANDBY switch up until it clicks and leave the camcorder until the ⊏⊐ indicator flashes rapidly. When using the AC-S10 AC power adaptor or the DC-S10 car battery charger, you can discharge the battery with their discharging function.
- Repeated charging while some capacity remains causes a lowering of battery capacity. However, **the original battery capacity can be recovered if you fully discharge and charge the battery again.**

Recharge the battery pack just before using.
If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged. Charge it again but in this case the battery life will be shortened than normal. After several charging and discharging cycles, the battery life will recover its original capacity.

Keep the Terminals Clean

If the terminals (metal parts on the back) are not clean, the battery duration will be shortened. (D-6)
When the terminals are not clean or when the battery pack has not been used for a long time, repeat installing and removing the battery pack. This will improve the contact condition.
Also, wipe the + and – terminals with a soft cloth or paper.

(D-7)

Notes on the Rechargeable Battery Pack

Why the battery pack heats up? (D-7)
During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not a cause for concern.

How to care for the battery pack

- Remove the battery pack from the camcorder after using it, and keep it in a cool place.
  When the battery pack is attached to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is turned off. It causes overdischarging and shortens battery life.
- The battery pack is always discharging even when it is not in use after charging.
  Thus, it is recommended you charge the battery before using.

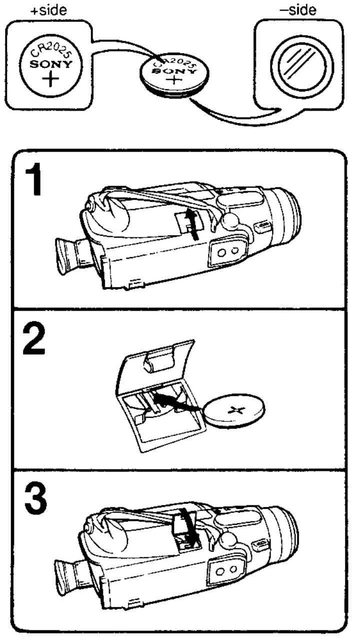
How many times can the battery pack be recharged ?
It can be fully charged and discharged about 500 times under normal temperatures.
If the ⊏⊐ indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Temperatures during charging
Charge under temperatures ranging from 10°C to 30°C (50°F to 85°F). Lower temperatures require a longer charging time.

Be sure to observe the following.

- **To prevent an accident caused by a short circuit, do not allow metal objects such as a necklace to touch the battery terminals.**
- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor convert the battery pack.
- Do not expose the battery pack to any mechanical shock.

(E-1)



Preparing your camcorder 2

Setting the Date and Time

Inserting the Lithium Battery

(E-1)

To keep birth dates and a title in the camcorder's memory as well as to activate the clock, insert a lithium battery.
The lithium battery has a + (positive) side and a – (negative) side. Be sure to install the supplied lithium battery with the correct polarity.

1 **Open the lid of the lithium battery compartment located behind the grip strap.**

2 **Insert the supplied lithium battery with the + (positive) side facing out.**

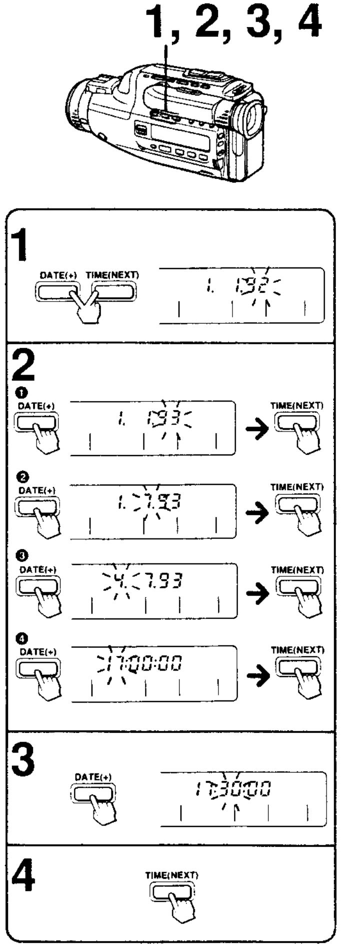
3 **Close the lid.**

Replacing the lithium battery
Remove the lithium battery from the camcorder, and insert a new one.

Note on lithium battery life
The battery will last for approximately 1 year in normal operation.
When the lithium battery becomes weak, the 🔋 indicator will flash in the viewfinder screen for about 5 seconds (when the POWER switch is set to CAMERA).
In this case, **replace the battery with a Sony CR2025. Use of any other type of battery may present a risk of fire or explosion.**
While replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, readjustments of the date, time, title and birth dates are necessary.

Cautions
- Keep the lithium battery out of the reach of children.
  Should the battery be swallowed, immediately consult a doctor.
- Do not hold the battery with metallic tweezers, otherwise a short-circuit may occur.
- Battery may explode if mistreated.
  Do not recharge, disassemble or dispose of in fire.

(E-2)



Setting the Date and Time

(E-2)

Make sure that a power source is connected and the lithium battery is inserted.

1 **Press DATE (+) and TIME (NEXT) simultaneously for a few seconds until the date indicator appears in the display window.**
The DATE (+) button now functions as + (to advance numbers) and the TIME (NEXT) button functions as NEXT (to set).

2 **Adjust the flashing digits of the year, month, day and hour using DATE (+), and press TIME (NEXT).**
- When you keep DATE (+) pressed, the digits advance faster.
- The year starts at 1992, and proceeds as follows:
  1992 ---→ 1999 → 2000 ---→ 2020

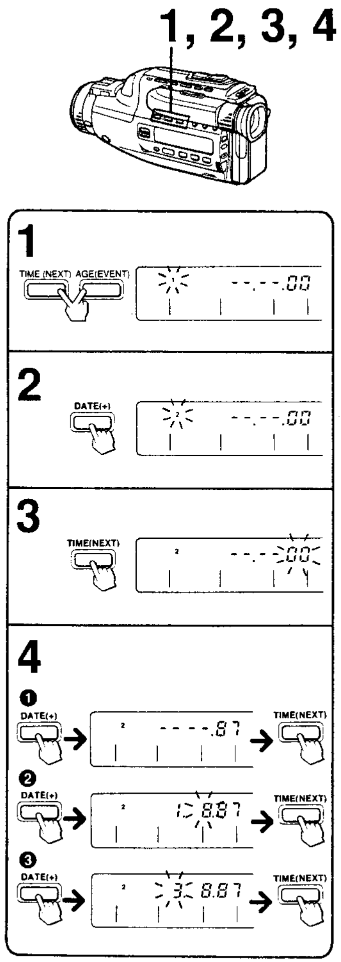
3 **Adjust the flashing minute digits by pressing DATE (+).**

4 **Press TIME (NEXT).**
The clock starts working.

Correcting date and time setting
Repeat steps 1 to 4.

Checking the preset date and time
Press DATE (+) or TIME (NEXT). When you press the same button again, the indicator goes off.

(E-3)



Storing a Birth Date in Your Camcorder

(E-3)

When your child's birth date is preset in the camcorder, you can put your child's age in years and months on your tape. You can also preset the date of an event. Once you enter the birth date of your child, the clock inside the camcorder will automatically update age of your child. You can superimpose the age any time on your recording. You can preset up to three birth dates or events.

Before you begin
Before storing the birth date in your camcorder, make sure that a power source is connected, that the lithium battery is inserted and that the date is correctly set.

Storing birth date
Example: store "Aug. 3, 1987" in memory 2.

1 **Press TIME (NEXT) and AGE (EVENT) simultaneously for a few seconds until the " 1" and "--.--.00" indicators appear in the display window.**

2 **Press DATE (+) to select 2.**
Each time you press DATE (+), the indicator in the display window changes as follows:
1 → 2 → 3
└───────┘
In the viewfinder, the indicator changes as follows:
[1] BIRTHDAY → [2] BIRTHDAY
└─ [3] EVENT* ←─┘

* Although "EVENT" is displayed on [3], you can use it for age as well. [1] and [2] can also be used for event.

3 **Press TIME (NEXT).**
The "00" indicator flashes.

4 **Enter the birth date of your child.**
First adjust the flashing digits with DATE (+), and then press TIME (NEXT). The age (year and month) appears when all items are adjusted.

If you missed the correct number with DATE (+)
Keep pressing DATE (+).
The indicator changes as follows:

Year: 00 → 01 ---→ Current year
↑
Current year minus 99 ←┘

Month: 1 → 2 ---→ 12
└──────────┘

Day: 1 → 2 ---→ 31
└──────────┘

Correcting and changing the setting
Follow the procedures from step 1 again.

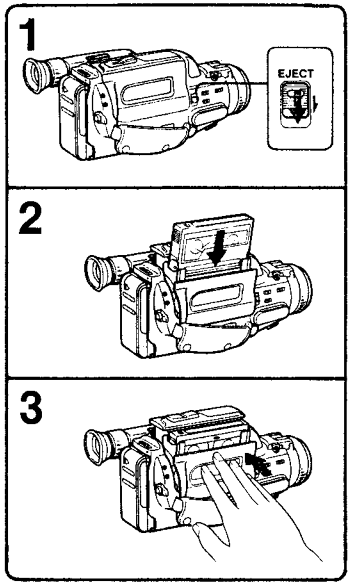
Advancing the digits faster
Keep DATE (+) pressed.

Presetting the year before 1900
1 After step 3 on page 20, keep pressing DATE (+) until the current year is displayed.
2 Press DATE (+) again
The year goes back 99 years.
(example: 1992 → 1893)
3 Go to step 4 in page 20.

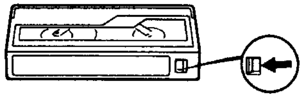
When in 2000
"--.--.01" is displayed in step 1 on page 20. After that, it advances every years "02, 03, ---".

To cancel a stored birth date
1 Perform steps 1 and 2 on page 20 to select the memory number to be canceled.
2 Press TIME(NEXT) twice.
The month indicator flashes.
3 Press DATE(+) until "--- --" appears.
4 Press TIME(NEXT).
The brith date is deleted from the memory and is not displayed when you press AGE (EVENT).

(F-1)



(F-2)



Preparing your camcorder 3

Inserting a Tape

Inserting a Tape

(F-1)

Make sure that a power source is connected. About the tape you can use, see page 54.

Note

When you record in Hi8 system, prepare a Hi8 video tape.

1 **While pressing the small blue button on the EJECT knob, slide the knob down.**
The cassette holder lifts up and opens.

2 **Insert a tape with the window facing outside.**

3 **Press the "PUSH" mark to close the cassette holder.**

Ejecting the Tape

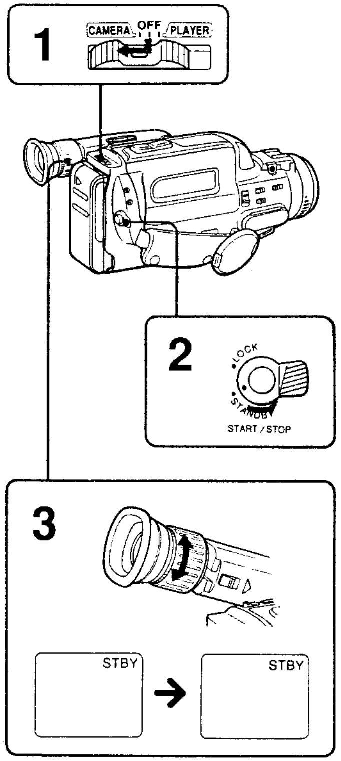
Make sure that a power source is connected.
1 While pressing the small blue button on the EJECT knob, slide the knob down.
2 Take out the tape and press the "PUSH" mark to close the cassette holder.

Preventing Accidental Erasure

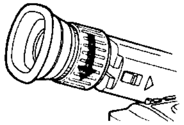
(F-2)

Slide the red tab closing the window to prevent accidental recording. To re-record on the tape, slide the tab opening the window.
If you try to record with the red mark exposed, the ⊠ and ⏏ indicators flash in the viewfinder and beeps sound for about 5 seconds.

(G-1)



(G-2)



Preparing your camcorder 4

Adjusting the Viewfinder Lens

The position of the viewfinder lens for optimum vision varies depending on the person. Adjust it when using for the first time, or when using after someone else. (G-1)

Make sure that a power source is connected and a tape is inserted.

1 **While pressing the green button on the POWER switch, slide it to CAMERA.**

2 **Turn the STANDBY switch up until it clicks.**

3 **Turn the viewfinder lens adjustment ring so that the "STBY" in the viewfinder comes into sharp focus.**

Using the Viewfinder as a Sports Finder

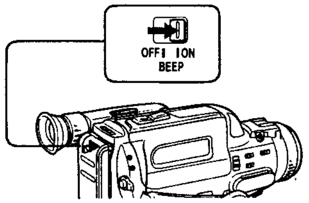
The sports finder allows you to monitor the picture while your eye is at a distance from the eyecup.

Setting the viewfinder to the sports finder position
Turn the viewfinder adjustment ring clockwise completely. (G-2)

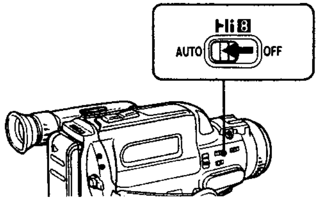
Returning to the normal viewfinder position
Turn the viewfinder adjustment ring counterclockwise until "STBY" in the viewfinder comes into sharp focus.

Recording a Picture Using Automatic Adjustments

(H-1)



(H-2)



Before recording "once-only" events, we strongly recommend you make a trial record and check that everything is working perfectly.

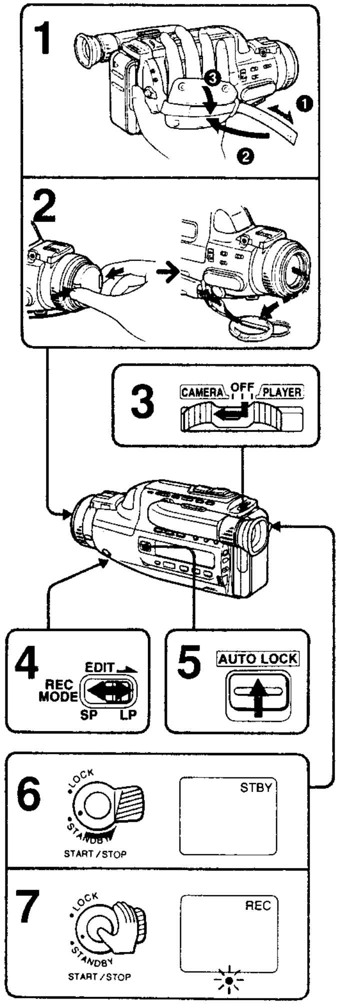
Checking the BEEP switch (H-1)
Normally set the BEEP swith to ON.
The camcorder beeps when you start and stop recording, and if any difficulty should arise during operation. If you want to deactivate the beeps, set the BEEP switch to OFF.

Notes

- Beeps are not recorded on the tape.
- For warning beeps, see back cover.

Checking the Hi8 AUTO/OFF switch (H-2)
Normally set the Hi8 AUTO/OFF switch to AUTO. If you want to record in the standard 8 mm system, set to OFF. For details, see page 54.

(H-3)



Start Recording.

(H-3)

1 **Hold the camcorder by putting your hand through the grip strap so that your thumb can easily press the red START/STOP button.**

2 **Remove the lens cap and attach it to the grip strap.**

3 **While pressing the small green button on the POWER switch, slide it to CAMERA.**

4 **Set the REC MODE switch to LP (long play) or SP (standard play), according to the length of your planned recording.**

5 **Set the AUTO LOCK switch to the green position.**

6 **Turn the STANDBY switch up.**
"STBY" appears in the viewfinder. Now, you can see a picture through the viewfinder.

7 **Press START/STOP (red button) once.**
The camera is recording when the word "REC" appears and red lamp lights up in the viewfinder. You can also confirm the recording start with the beep sound when the BEEP switch is set to ON.

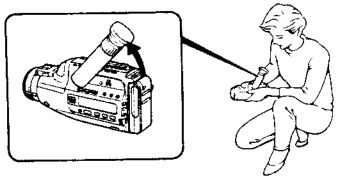
To stop recording momentarily
Press START/STOP again.
Two beeps sound and "STBY" appears in the viewfinder.

Automatic recording
With the AUTO LOCK switch set to the green position, all the camera functions are in automatic mode (i.e. auto exposure, auto white balance, auto focus) and the shutter speed is set at normal (1/50 second).

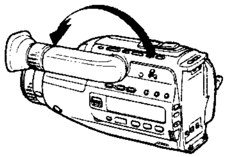
When you have finished recording
Turn the STANDBY switch down, set the POWER switch to OFF and put on the lens cap.

When recording with the Remote Commander
Confirm that the ▣ REMOTE COMMANDER switch is set to ON. Aim the Commander at the remote sensor on the camcorder. Then press START/STOP on the Commander to start recording. To standby (to stop recording momentarily), press it again. For preparation of the Commander, see page 9.

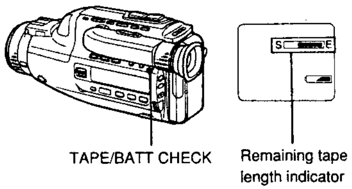
(H-4)



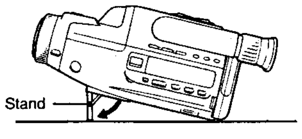
(H-5)



(H-6)



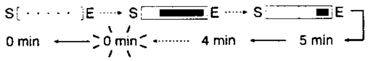
(H-7)



Recording a Picture Using Automatic Adjustments

Recording from a low angle (H-4)
Set the viewfinder to the sports finder position (page 23) and turn it for a recording from a low angle.
The viewfinder barrel can be turned 180 degrees.
(H-5)

Checking the remaining tape (H-6)
Press TAPE/BATT CHECK.
The remaining tape length indicator appears in the viewfinder. (It may take about 20 seconds to display it.) When the remaining time is less than about 5 minutes, the indicator shows the minutes remaining.



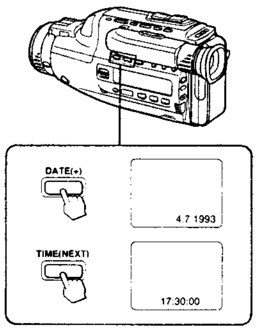
When "5 min" appears, the ▭ indicator flashes in the viewfinder.

Notes on the remaining tape length indicator
- The camcorder must be in recording or playback mode when the TAPE/BATT CHECK button is pressed to find out the remaining time. In playback mode, however, the indicator does not show the remaining minutes.
- The tape length indicator does not change while using EDITSEARCH (page 30).

If the tape reaches near the end during recording
The ▭ indicator in the viewfinder and the display window, and the camera recording/battery lamp on the camcorder flash slowly.
When the tape reaches its end, flashing becomes rapid and beeps sound for about 5 seconds when the BEEP switch is set to ON.

Using the stand (H-7)
Use the stand when you want to place the camcorder on a table or on the ground so that the camcorder looks upward.
Pull out the stand until it locks.
When you have finished using the stand, make sure that you put it into its original position by pressing it in.

(H-8)



Recording a Picture Using Automatic Adjustments

Notes on recording
- When you record from the beginning of the tape, run the beginning of the tape for about 15 seconds before recording. This will avoid missing the starting point when the tape is played back.
- When you move from indoors to outdoors, or vice versa, turn the STANDBY switch up until it clicks and point the camcorder at a white object for about 10 seconds so that the white balance is properly adjusted.

Note on standby mode
If you leave the camcorder in standby mode for 5 minutes or more, the camcorder will be automatically turned off. To resume standby mode, turn the STANDBY switch down once and turn it up again.

Recording mode
You can record and play back a picture on a tape in both SP (standard play) and LP (long play) modes. However, the quality of the playback picture in the LP mode will not be as good as that in the SP mode.

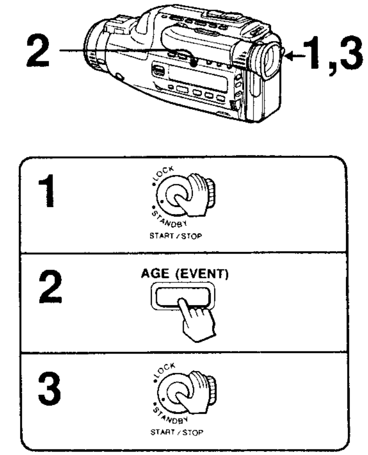
Recording the Date or Time

(H-8)

During camera recording or when in standby mode, press DATE (+) for the date indicator or TIME (NEXT) for the time indicator.
The date or time indicator displayed in the viewfinder is recorded with the picture.

To stop recording with the date or time
Press DATE (+) or TIME (NEXT) again.
The picture recording continues.

(H-9)



Putting an Age on Your Tape

You can put the age of your children on your tape while recording.

(H-9)

1 **During recording, press START/STOP at the point where you want to insert the age of a person or the elapsed time.**
This puts the camcorder in standby mode.

2 **Press AGE (EVENT) to select the indicator you want to record.**
Each time you press AGE (EVENT), the indicator changes as follows:

No indicator → $\boxed{1}$ The first age
↑ ↓
$\boxed{3}$ The third age ← $\boxed{2}$ The second age

In the display window, the indicator changes as follows:

No number → 1
↑ ↓
3 ← 2

An item with no presetting is skipped. The $\boxed{1}$, $\boxed{2}$ or $\boxed{3}$ indicator goes out after one second.

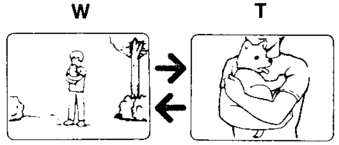
3 **Press START/STOP.**
Recording starts again. The indicator in the viewfinder is recorded with the picture.

To stop recording with the age
Press AGE (EVENT) until the indicator goes out.

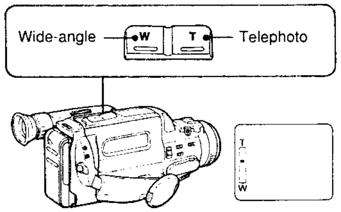
Changing the display while recording
Press AGE (EVENT) until the indicator you want to record is displayed. Recording of the indicator you select start when $\boxed{1}$, $\boxed{2}$ or $\boxed{3}$ goes out.

Note
You cannot add the age later during playing back or editing.

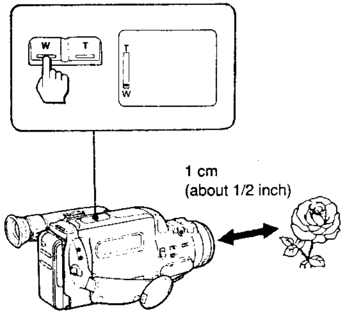
(H-10)



(H-11)



(H-12)



Zooming

By zooming, you can change the size of the subject in the scene. Use "zoom-in (Telephoto)" for dramatic close-ups, and "zoom-out (Wide-angle)" for panoramic long shooting. Also use the zoom to focus manually or to decide the shooting angle. But avoid using zoom-in or zoom-out too often. Use zooming sparingly. **(H-10)**

Two-levels speed zooming (H-11)
The camcorder's power zoom button offers two-level speed zooming.
Press the button firmly for high speed zooming and softly for relatively slow zooming.

W side: for wide-angle (subject appears farther way)
T side: for telephoto (subject appears closer)

Two-level speed zooming cannot be operated with the power zoom button on the Commander.

Focal length of this camcorder
The focal length is 6.1 mm to 61 mm. This means approximately 44 mm to 440 mm converted into the focal length of a 35-mm still camera.

Close-up (Macro)

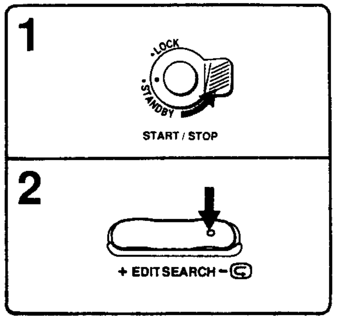
You can shoot subjects that are at least 1 cm (about 1/2 inch) away from the lens surface.

Press the W side of the power zoom button until the power zoom indicator inside the viewfinder stops at the W end. **(H-12)**

Manual adjustment
You can shoot with manual focus while doing close ups. For manual focusing, see page 34.

Note
When doing close-ups, the depth of field (range the subject will be in sharp focus) is very shallow, so pay attention to focusing. To keep the subject in focus, use a tripod.

(H-13)



Checking the Recorded Picture in the Viewfinder (EDITSEARCH)

Using EDITSEARCH (⊜), you can review the last recorded scene or check the recorded picture in the viewfinder. After checking your recorded picture, you can also re-record over a previously recorded portion.

Reviewing the last recorded scene — RecReview

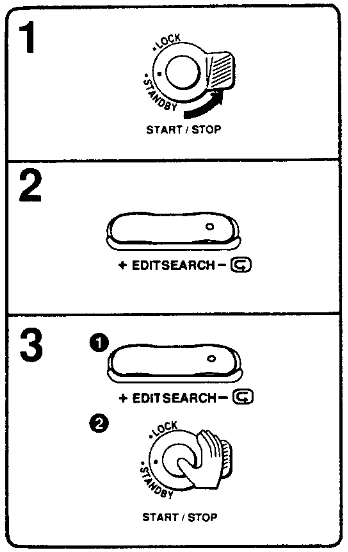
(H-13)

You can check the last portion of a scene you just recorded with the camera. This is convenient for quick, on-the-spot checks.

1 **Set the camcorder into standby mode by turning the STANDBY switch up.**

2 **Press the – side of the EDITSEARCH (⊜) button momentarily.**
The last few seconds of the recorded portion are played back in the viewfinder. Then, the camcorder goes back to standby mode, ready for the next recording.

(H-14)



Checking your recorded picture — Editsearch

(H-14)

You can check the recorded picture in the viewfinder. After checking, you can also re-record over a previously recorded portion.

1 **Set the camcorder in standby mode by turning the STANDBY switch up.**

2 **Keep pressing the + side or – side of the EDITSEARCH (⊜) button to play back the picture while looking in the viewfinder.**
+ side: to view the forward playback picture
– side: to view the reverse playback picture
To stop playback, release the EDITSEARCH button.

3 **If you want to re-record over a recorded portion, follow the procedures below:**

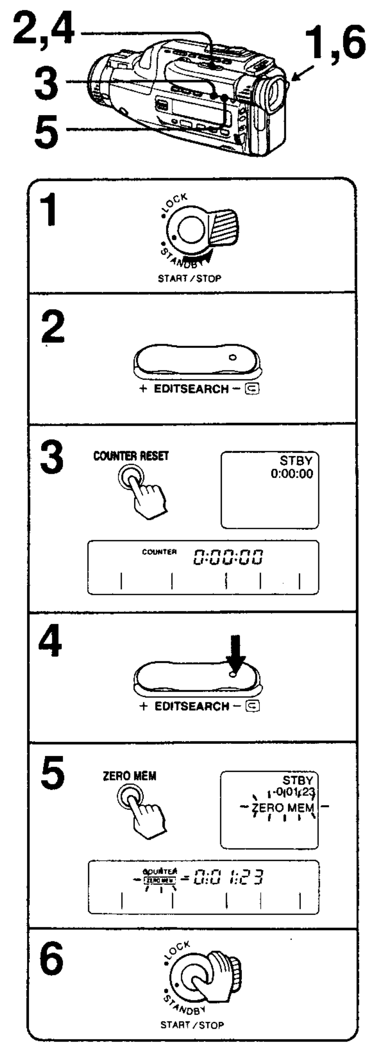
❶ Press the + side or – side of the EDITSEARCH button to locate the point you want to begin the re-recording.

❷ Press START/STOP to start re-recording. Re-recording begins from the point you released the EDITSEARCH button. As long as the tape is not ejected, the transition between the scenes will be smooth.

To monitor the sound while viewing the playback picture in the viewfinder

1. Connect headphones to the ∩ jack.
2. While pressing the green button on the POWER switch, slide it to PLAYER.
3. Press ◀◀ (REW) to rewind the tape and press □ (STOP) where you want to stop.
4. Press ▷ (PLAY) to start playback.

(H-15)


2,4
3
5
1,6
1
LOCK
STANDBY
START/STOP
2
+ EDITSEARCH –
3
COUNTER RESET
STBY
0:00:00
COUNTER
0:00:00
4
+ EDITSEARCH –
5
ZERO MEM
STBY
0:01:23
ZERO MEM
COUNTER
ZERO MEM
0:01:23
6
LOCK
STANDBY
START/STOP

Re-recording a Picture in the Middle of a Recorded Tape (Insert Recording)

(H-15)

1 **Turn the STANDBY switch up to set the camcorder into standby mode.**

2 **While looking in the viewfinder, keep pressing the + or – side of the EDITSEARCH button and release it where you want to end the insertion.**

3 **Press COUNTER RESET.**
The counter is reset to zero.

4 **While looking in the viewfinder, keep pressing the – side of the EDITSEARCH button and release it at the point where you want to start the insertion.**

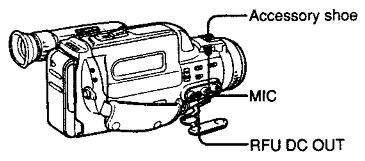
5 **Press ZERO MEM.**
The insert ending point is stored in memory.

6 **Press START/STOP.**
A beep sounds when the BEEP switch is set to ON and insert recording begins. The insert recording stops automatically near the counter zero point.

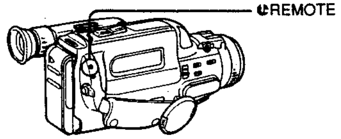
Cancelling the ZERO MEM
Press ZERO MEM.

Note
The picture may be distorted at the end of the inserted portion when played back.

(H-16)


Accessory shoe
MIC
RFU DC OUT

(H-17)



Recording with an External Microphone

(H-16)

You can connect an external microphone (not supplied) to the MIC jack. This jack also accepts a "plug-in power" microphone.
If the microphone has two plugs, connect the DC IN plug to the RFU DC OUT jack on the camcorder.
Attach the microphone to the accessory shoe of the camcorder.

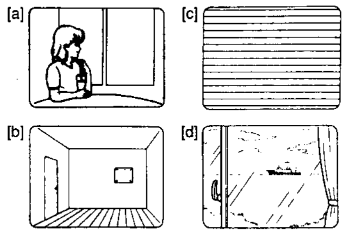
Note
When using an external microphone, wind noise is not muted.

Connecting a Wired Remote Control Unit

(H-17)

When you connect a wired remote control unit or editing controller (not supplied) to the REMOTE connector, you can operate your camcorder from a distance.

(I-1)



Making Manual Adjustments

The camcorder's automatic functions offer you worry-free operation under most shooting conditions. But in some circumstance, manual adjustment is better for effective recording. You can manually adjust focus, white balance, shutter speed, and exposure with this camcorder. Even if you set the camcorder to manual adjustment mode, only settings you make are changed. Other settings remain the same as those in automatic adjustment.
As long as you do not remove the battery, even if you set the POWER switch to OFF, the previous manual settings are retained.

Manual Focusing

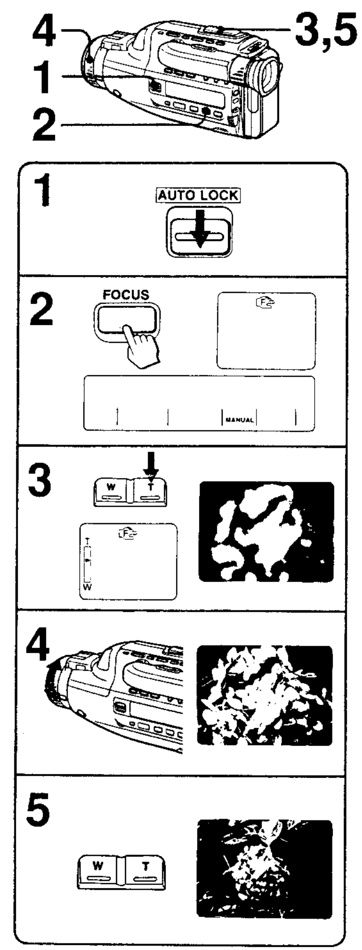
When to use manual focus
You would obtain better results by adjusting the focus manually in the following situations **(I-1)**:

[a] Too much brightness behind the subject
[b] Subjects with little contrast — wall, sky, etc.
[c] Horizontal stripes
[d] Subject through frosted glass

- Insufficient light
- One subject is close; the other is in the center, but at a distance
- Bright subject or subject reflecting light
- High contrast behind the subject (The background may be focused.)
- When shooting a stationary subject using a tripod
- When you want to save battery power

This camcorder keeps in focus by referring to the picture contrast, which is weak in the above situations.

(I-2)



Focusing Manually

(I-2)

1 Set the AUTO LOCK switch down.

2 Press FOCUS.
The Ⓕ indicator appears in the viewfinder, and "MANUAL" appears in the display window.

3 Keep pressing the T side (Telephoto) of the power zoom button until the zooming stops.
The power zoom indicator appears in the viewfinder.

4 Turn the focus ring to achieve sharp focus.

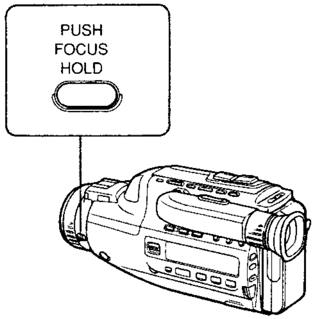
Note
The focusing ring does not have a stop position.

5 Set the desired shot length using the power zoom button.

Resetting autofocus
Press FOCUS until the Ⓕ indicator in the viewfinder disappears. "MANUAL" disappears and "AUTO" appears in the display window.

Shooting in relatively dark places
When shooting in relatively dark places such as indoors, the depth of field in proper focus becomes very shallow. For best results, shoot at wide angles after focusing in telephoto.

(J)



Fixing the Focus to the Object

When shooting a certain object with automatic focusing, you may see that an object abruptly passing in front of the object you want to shoot is in focus and the object on which you want to focus is out of focus. In this case, use the PUSH FOCUS HOLD button to set the focus to the object you want to shoot.

(J)

1. **Focus on the object you want to shoot.**
2. **Keep pressing PUSH FOCUS HOLD.**
   As long as you hold the button, the automatic focus is inactivated (the ⚙ indicator appears inside the viewfinder) and the focus is fixed to the object you want to focus.

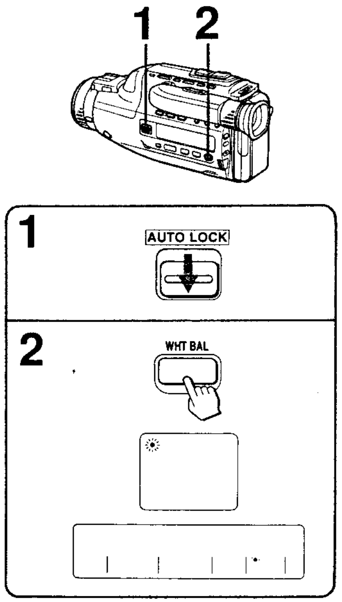
To restore the automatic focusing mode
Release PUSH FOCUS HOLD.

Adjusting the White Balance

White balance is the adjustment to make white subjects look white and to obtain a more natural colour balance for camera recording.
In the following cases, you whould obtain better results by adjusting the white balance manually.

Conditions	Indicator inside the viewfinder
Lighting conditions change quickly	·☼· (indoor)
Conditions too bright, such as in photography studios	
Under sodium lamps	
Under merury lamps	
Monochromatic subject or background	HOLD
Under a colour matching fluorescent lamp	• (outdoor)
Recording: • a sunset/sunrise • just after sunset • just before sunrise • neon signs, fireworks	

(K)



Adjusting the White Balance

(K)

1. **Slide the AUTO LOCK switch down.**
2. **Select the white balance mode by pressing WHT BAL.**
   Each time you press the button, the indicator in the viewfinder and the display window changes as follows.

   No indicator (auto)
   ↓
   HOLD
   ↓
   • (outdoor)
   ↓
   ·☼· (indoor)

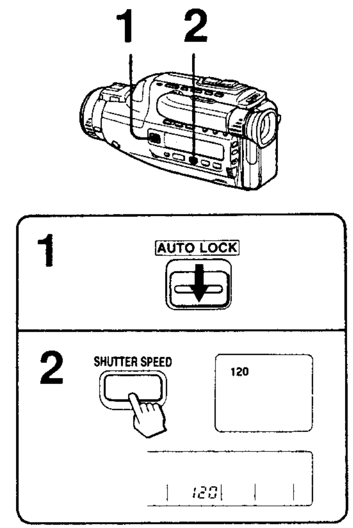
Note
When you adjust the white balance manually, make sure you readjust white balance everytime you move from indoors to outdoors, or vice-versa.

Locking the White Balance Setting (HOLD mode)

When you set the white balance at HOLD mode, the last automatic white balance setting you made will be locked and maintained even if lighting conditions change. You should obtain better results by using the HOLD position when you shoot monochromatic subject or backgrounds.

To enter HOLD mode
1. Slide the AUTO LOCK switch to the green position.
   The camcorder adjusts the white balance automatically.
2. Point the camcorder at a white, flat object such as a white wall or paper for about 15 seconds.
3. Slide the AUTO LOCK switch down.
4. Press WHT BAL to display the HOLD indicator in the viewfinder and the display window.

(L)



Using the High-speed Shutter

When you record a fast-moving subject, choose a higher shutter speed. The movement will look sharper during freeze frame when the tape is played back with an 8 mm recorder that has the clear still function. Remember that you need enough lighting to use the high-speed shutter.

Example use	Shutter speed
• On clear days, recording golf or tennis swing (To view the hit ball clearly in the still picture mode, set to 1/10000 or 1/4000) • Recording skiers	1/10000 or 1/4000 or 1/2000
• On overcast days, recording a moving carousel or roller coaster • Recording outdoors from inside a moving vehicle (for stable shooting)	1/1000 or 1/250
• Instead of using the ND2 (neutral density) filter (To reduce the exposure level to about half) • Recording indoor sports (for stable shooting)	**1/120**

(L)

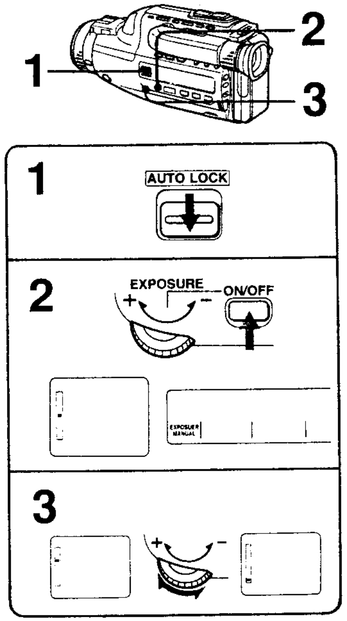
1 Slide the AUTO LOCK switch down.

2 Select the shutter speed by pressing SHUTTER SPEED.
Each time you press the button, the indicator in the viewfinder and the display window changes as follows.

No indicator (1/50) → **120 (1/120)** → 250 (1/250) → 1000 (1/1000)
↑ ↓
10000 (1/10000) ← 4000 (1/4000) ← 2000 (1/2000)

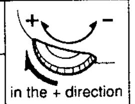
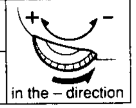
Note on lighting
When you use shutter speed 1/250 or faster, record under sunlight or use a video light.

(M)



Adjusting the Exposure

In the following cases, you would obtain better results by adjusting the exposure manually.

Conditions	Turn the EXPOSURE dial:
The background is too bright (backlighting)	 in the + direction
Insufficient light: most of the picture is dark.	
Bright subject and dark background	 in the – direction
To record the darkness faithfully.	

(M)

1 Slide the AUTO LOCK switch down.

2 Press EXPOSURE ON/OFF.
The exposure is locked at the present brightness. The exposure indicator appears inside the viewfinder and EXPOSURE MANUAL appears in the display window.

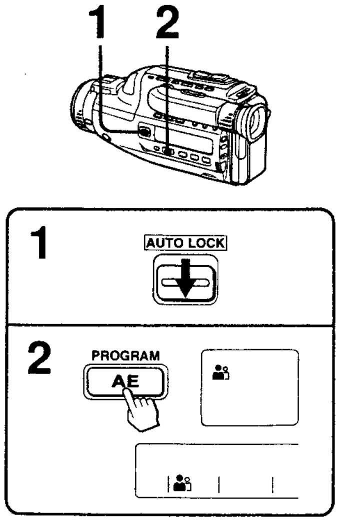
3 Adjust the exposure by turning the EXPOSURE dial in the + or – direction.
The exposure is locked at the adjusted brightness.

Resuming the automatic exposure mode
Press EXPOSURE ON/OFF so that the exposure indicators disappear, or set the AUTO LOCK switch to the green position.

(N-1)

(N-2)

(N-3)



Using Program AE

When you use the PROGRAM AE (Auto Exposure) function, you can create a "portrait" effect (shallow depth of field) or capture high-speed action with the "sports" mode.
Program AE automatically selects just the right combination of shutter speed and aperture settings and gives you creative control of depth of field (range of that will be in sharp focus).

You may want to use the respective mode when shooting the following subjects or when shooting under following conditions.

(N-1)
Portrait mode
- A still subject such as a person or flower
- Subject behind such obstacles as a net
- Zooming on a subject in telephone mode

(N-2)
Sports mode
- Recording a landscape while in a moving car
- Outdoor sports scenes such as football or tennis
- Subjects moving at high speed such as a roller coaster

(N-3)

1 **Slide AUTO LOCK switch down.**

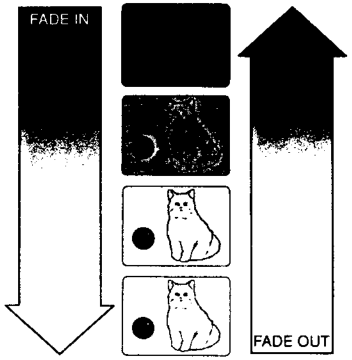
2 **Press PROGRAM AE.**
The PROGRAM AE indicator appears in the viewfinder and the display window.
Each time you press the button, the PROGRAM AE indicator changes as follows:

→ No indicator (automatic mode)
↓
(potrait mode)
↓
(sports mode)

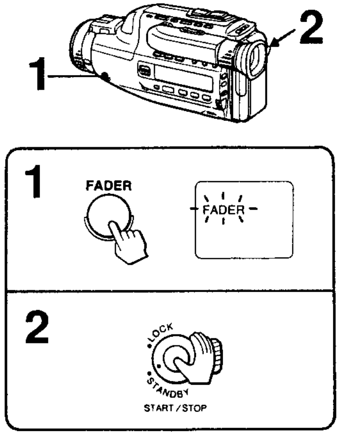
Resuming automatic mode
Press PROGRAM AE to turn off the PROGRAM AE indicators, or set the AUTO LOCK switch to the green position.

Note
Use sports mode in sunlight. Otherwise use a video light.

(O-1)



(O-2)



Fade-in and Fade-out

You can fade-in or fade-out to give your recording a professional touch.
When fading-in, the picture will gradually appear from black. The sound will also gradually increase.
When fading-out, the picture will gradually fade to black. The sound will decrease. You can also fade-in or fade-out the title superimposed. (O-1)

When fading-in (O-2)

1 **Press FADER after turning the STANDBY switch up to put the camcorder into standby mode.**
The fade indicator starts flashing.

2 **Press START/STOP.**
The fade indicator stops flashing and the recording starts fading in.

When fading-out

1 **Press FADER while recording.**
The fade indicator starts flashing.

2 **Press START/STOP.**
The fade indicator stops flashing and the picture fades out and then the recording stops.

Cancelling the fade-in/fade-out function
Before pressing START/STOP, press FADER again.

Using the fade-in/out function repeatedly
Start from step 1 each time.

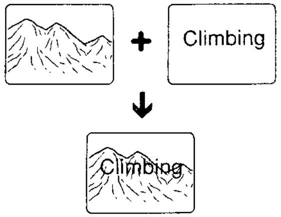
When the date/time (page 27) or age (page 28) is displayed
The date/time, or age does not fade-in or fade-out.

Superimposing a Title

You can superimpose your own hand-written message or graphics (title) over the picture during recording or playback (editing). **(P-1)**

Before recording, store a title.

(P-1)


+
Climbing
Climbing

Storing a Title

(P-2)

Before storing

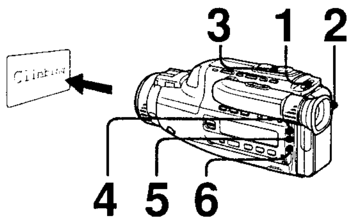
- Make a desired title card.
  Use a plain, white card and draw a title in a dark coloured marker using wide strokes.
  You can also use a graphics or a sign if they are thick enough and have contrast.
- Make sure the lithium battery is installed. (page 18)

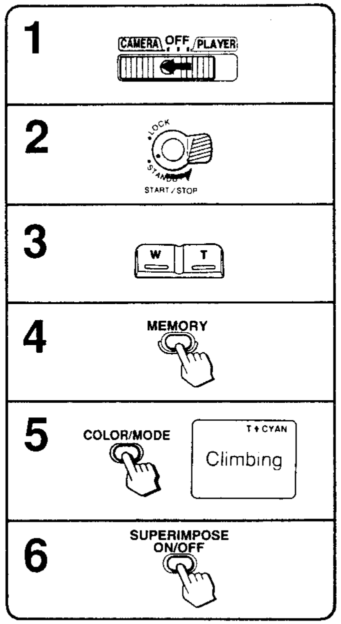
Storing a title

1. **While pressing the green button on the POWER switch, slide it to CAMERA.**
2. **Turn the STANDBY switch up to put the camcorder into standby mode.**
3. **Aim the camcorder at the title card and adjust the focus using the macro position (page 29).**
4. **Press MEMORY to store the title.**
5. **Press COLOR/MODE and select the title colour.**
   Each time you press the button, the indicator changes as follows.
   WHT (white) → BLUE → GRN (green) → CYAN → RED
   ↑ BLK (black) ← YEL (yellow) ← VIO (violet) ←
6. **Press SUPERIMPOSE ON/OFF to turn off the title.**
   Now, a title is stored in memory.

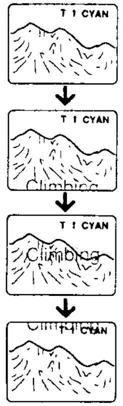
Cheking the title
Press SUPERIMPOSE ON/OFF in standby mode.
To turn off the title, press the button again.

(P-2)

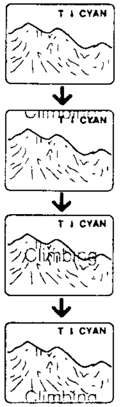



1
CAMERA OFF PLAYER
2
LOCK
STANDBY
START/STOP
3
W
T
4
MEMORY
5
COLOR/MODE
T+CYAN
Climbing
6
SUPERIMPOSE ON/OFF

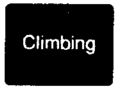
(P-3)



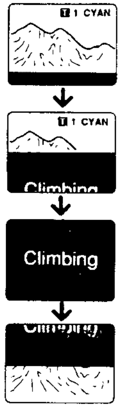
(P-4)



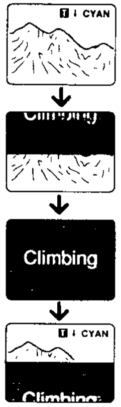
(P-5)



(P-6)



(P-7)

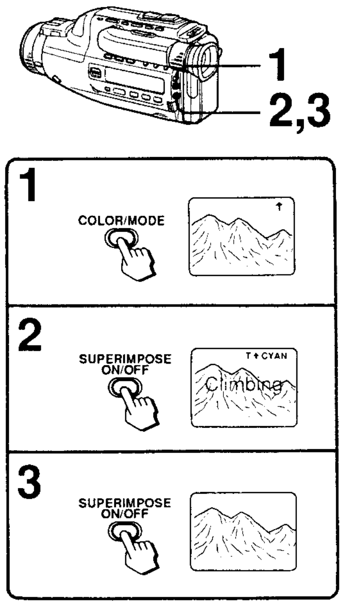


Various Display Modes of the Title

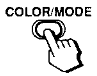
You can scroll your title up or down, or reverse the title.
Select the display mode of the title from the following table.

Display mode	Indicator in the viewfinder
Scrolling the title up (P-3) The title scrolls up and stops at the center.	↑
Scrolling the title down (P-4) The title scrolls down and stops at the center.	↓
Reversing the title with the picture (P-5)	▯
Scrolling the reversed title up (P-6)	▯↑
Scrolling the reversed title down (P-7)	▯↓
Normal display mode	No indicator

(P-8)



(P-9)



Superimposing a Title on Your Tape

(P-8)

The following example shows you how to superimpose a title with the scrolling up effect. The colour name and the display mode indicators in the viewfinder will not be recorded.

Before superimposing the title, store it in the camcorder.

1 **In recording standby mode, or during recording or playback, press COLOR/MODE to select the display mode of the title.**
(For display modes of the title, see page 44.)

2 **Press SUPERIMPOSE ON/OFF at the point from which you want to insert the title.**
The title appears.
To scroll the title without stopping, press the button twice repeatedly.

3 **At the point you want to turn off the title, press SUPERIMPOSE ON/OFF again.**
The title goes out.

Superimposing a title at the beginning
1 Set the camcorder in the standby mode.
2 Press SUPERIMPOSE ON/OFF.
3 Start recording with the title displayed in the viewfinder.
4 At the point you want to turn off the title, press SUPERIMPOSE ON/OFF again.

Function of the COLOR/MODE button
This button has a double function: one is to select the title colour and the other is to select the title display mode. **(P-9)**

To select the colour, display the title. Then press COLOR/MODE.
To select the display mode, press COLOR/MODE before displaying the title.

Notes on displaying a title during playback
- You can display the title during playback, pause and slow playback modes. When displaying the title in playback mode, the title disappears if you press ◀◀ (REW) or ▶▶ (FF).
- During playback, the title is not recorded on the tape.

Connections for Playback

You must connect the camcorder to the TV and/or VTR properly to view the playback picture.
First check if your TV has video/audio input jacks.
For details on the TV and VTR, refer to their operation manuals.

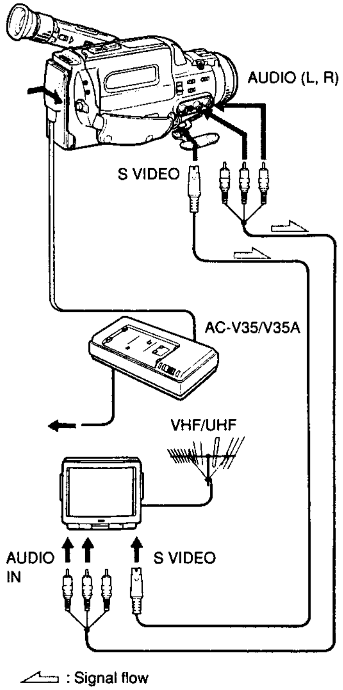
Connecting a TV with S Video or Video and Audio Input Jacks

Connecting a TV with an S video jack

(Q-1)

1 Connect the camcorder to the TV using the supplied S video and A/V connecting cable. You do not need to connect the yellow (video) plug of the A/V connecting cable.
2 Attach the connecting plate of the AC power adaptor to the camcorder.
3 Set the TV/VIDEO selector on the TV to VIDEO.

(Q-1)


AUDIO (L, R)
S VIDEO
AC-V35/V35A
VHF/UHF
AUDIO IN
S VIDEO
: Signal flow

Connecting a TV with the video/audio inputs

(Q-2)

1 Connect the TV and the camcorder using the supplied A/V connecting cable.
   - If your TV is a monaural type, connect only the white plug of audio both on the camcorder and the TV. Do not use the red plug.
   - If your TV has a 21-pin connector (EUROCONNECTOR), use the supplied 21-pin adaptor. **(Q-3)**
2 Attach the connecting plate of the AC power adaptor to the camcorder.
3 Set the TV/VIDEO selector on the TV to VIDEO.

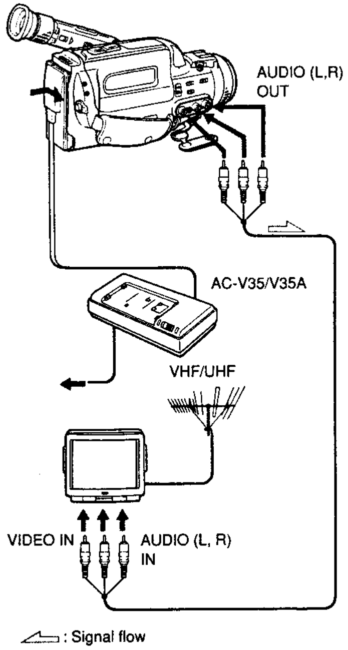
Connecting to a TV via a VTR

(Q-4)

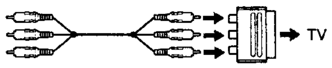
Connect the camcorder to the VTR instead of the TV.
Set the input selector of the VTR to LINE, if available.

If your TV does not have video/audio input jacks
Use an RFU adaptor (not supplied).

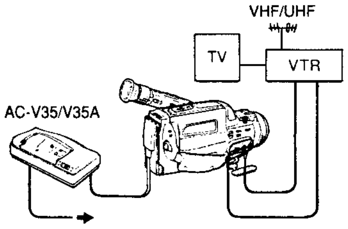
(Q-2)


AUDIO (L,R) OUT
AC-V35/V35A
VHF/UHF
VIDEO IN
AUDIO (L, R) IN
: Signal flow

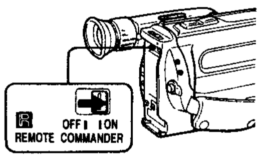
(Q-3)



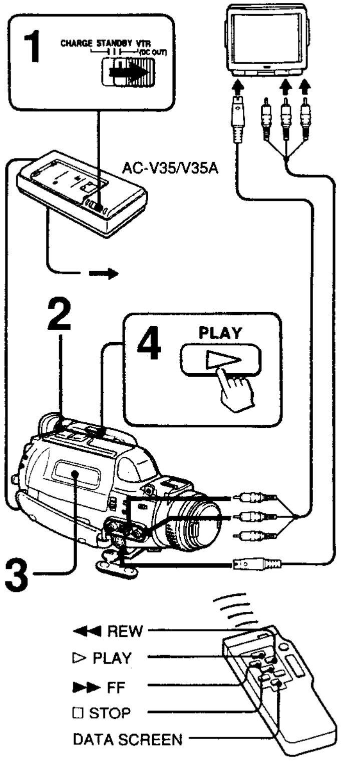
(Q-4)


VHF/UHF
TV
VTR
AC-V35/V35A

(R-1)



(R-2)



Playing Back a Tape

The supplied wireless Remote Commander is useful to control the camcorder from a distance. When using it, be sure to set the ▣ REMOTE COMMANDER switch to ON. **(R-1)**

(R-2)

1. **Set the CHARGE/VTR switch on the AC power adaptor to VTR.**
2. **While pressing the small green button on the POWER switch, slide it to PLAYER.**
3. **Insert a tape.**
4. **Press ▷ (PLAY).**
   Playback starts.

To stop playback, press □ (STOP).

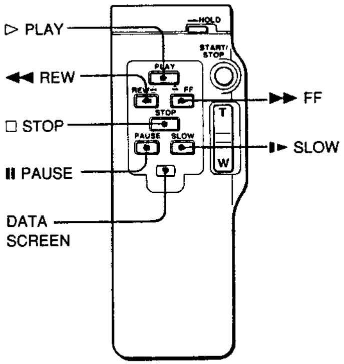
To rewind the tape, press ◀◀ (REW).

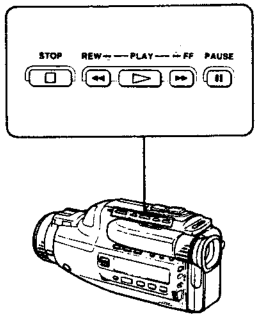
To advance the tape rapidly, press ▶▶ (FF).

To display the same indicators on the TV as in the viewfinder, press DATA SCREEN. To turn them off, press it again.

After playing back
Set the POWER switch on the camcorder to OFF and the CHARGE/VTR switch on the AC power adaptor to STANDBY.

(R-3)





Various Playback Modes

(R-3)

To view the still picture (playback pause), press **II** (PAUSE) during playback.
II appears in the viewfinder.
To resume normal playback, press ▷ (PLAY) or **II** (PAUSE).

Note
When the still picture mode lasts for 5 minutes or more, the camcorder automatically enters stop mode.

To view the picture at 1/5 speed (slow playback, only on the Commander), press I▶ (SLOW) during playback.
I▶ appears in the viewfinder.
To resume normal playback, press ▷ (PLAY).

Note
When slow playback lasts for 1 minute or more, playback at the normal speed starts automatically.

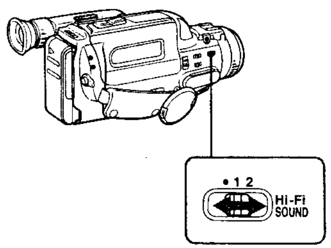
To locate the desired scene (picture search), keep pressing ◀◀ (REW) or ▶▶ (FF) during playback or in the still picture mode. ⏪ or ⏩ appears in the viewfinder.
To resume normal playback, release the button.

To locate the desired scene quickly (skip scan), press ◀◀ (REW) during rewinding or ▶▶ (FF) during advancing the tape rapidly. ⏪ or ⏩ appears in the viewfinder.
To resume normal playback, press ▷ (PLAY).

About the playback picture
During the various playback modes, streaks appear on the screen and the sound is muted.

About the HOLD switch on the Commander
Slide it in the direction of the arrow when you want to prevent the buttons on the Commander from being accidentally pressed.

(R-4)



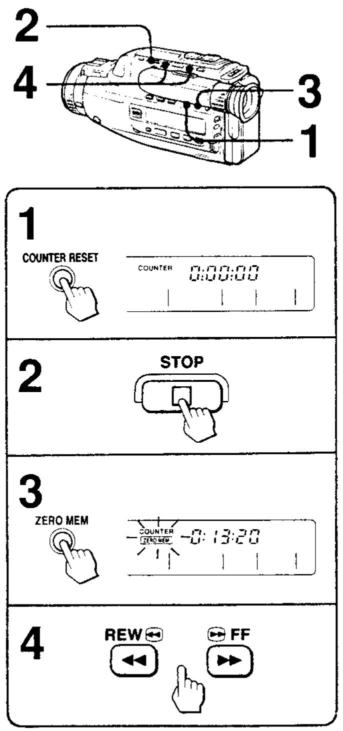
Playing Back a Tape with Dual Sound Tracks

(R-4)

Normally set the Hi-Fi SOUND switch to ● position.
When the tape with dual sound tracks is played, set the Hi-Fi SOUND switch to the desired sound, 1 or 2.

Note
When you connect to a TV using an RFU adaptor, or when the TV or VTR is a monaural type, set the Hi-Fi SOUND switch to 1 or 2.

(S)



Using the Tape Counter

During recording or playback, the digits on the counter indicate the actual recording or playback time.

Counting the Whole Tape

Press COUNTER RESET at the beginning of the tape so that the counter shows "0:00:00".

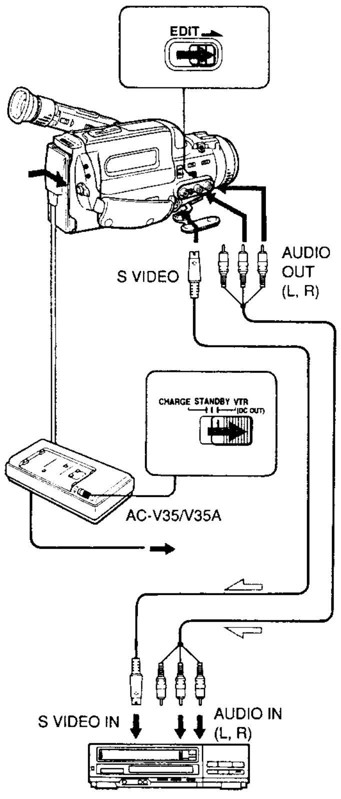
Returning to a Pre-registered Point

(S)

1. **During playback, press COUNTER RESET at the point you later want to locate.**
   The counter shows "0:00:00".
2. **Press □ (STOP) when the playback has finished, as usual.**
3. **Press ZERO MEM.**
   The "ZERO MEM" indicator flashes in the display window.
   Note
   Be sure to press ZERO MEM after you stop the tape. It does not function during playback.
4. **Press ◀◀ (REW) or ▶▶ (FF).**
   The tape rewinds or advances and stops automatically when the counter reaches approximately zero.

Notes on the tape counter and ZERO MEM button
- Something must be recorded on the tape in order for the tape counter to function. The tape counter will not work on blank tape.
- The counter reading and the point of the tape may not correspond exactly. Use the counter as a guide. There will be a time lag of several seconds especially when you repeat fast-forward running/rewinding and play back the tape recorded in LP and SP modes mixed.

(T)



⇦: Signal flow

Editing onto Another VTR

You can create your own video program by editing with any other 8mm, Hi8 mm, Betamax, ED Betamax, VHS, S-VHS, VHSC, S-VHSC VTRs that has video/audio inputs.
You can superimpose the title during editing.

Before You Begin

(T)

- Make the connection using the supplied A/V connecting cable.
- If your VTR has an S video input jack, connect it to the S VIDEO jack on the camcorder using the S video connecting cable (supplied). In this case, you do not need to connect the yellow (video) plug of the A/V connecting cable.
- If your VTR is a monaural type, connect only the white plug for audio both on the camcorder and the VTR. Do not use the red plug. In this case, the sound will be in monaural.
- Set the input selector of the VTR to LINE, if available.

Operation

1. Insert a tape to be recorded on into the recording VTR.
2. Set the EDIT switch on the camcorder to the direction of the arrow (EDIT ON).
3. Set the CHARGE/VTR switch on the AC power adaptor to VTR.
4. Set the POWER switch of the camcorder to PLAYER and insert your recorded tape.
5. Play back the tape on the camcorder and locate the point where you want to start editing and set the camcorder to playback pause mode.
6. On the recording VTR, locate the recording starting point and set the VTR to recording pause mode.
7. Press **II** (PAUSE) of both VTRs simultaneously to start editing.

To stop editing momentarily, press **II** (PAUSE) on the recording VTR.

To edit more scenes, repeat steps 5 to 7.

To stop editing, press □ (STOP) on both the camcorder and the VTR.

Use of the EDIT switch
When you set the EDIT switch to the direction of the arrow (EDIT ON), picture deterioration resulting from editing can be kept to the minimum. Avoid using the edited tape for multiple generations of editing. After editing, be sure to set this switch in the opposite direction of the arrow (EDIT OFF).

Note on DATA SCREEN function
If you have displayed the viewfinder indicators on the TV (DATA SCREEN function), erase them by pressing DATA SCREEN so that they will not be superimposed on the edited tape.

For Your Information

Selecting Cassette Types

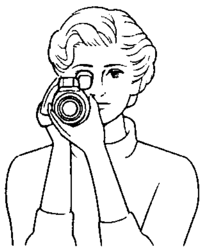
The Hi8 system is an extension of the standard 8 mm system, and was developed for a higher quality picture.
You can use Hi8 video and standard 8mm cassettes with your camcorder.
But, when you want to record in Hi8 system, you can use only the Hi8 video cassettes. A standard 8mm cassette cannot be recorded in the Hi8 system.

When the **Hi8** AUTO/OFF switch is set to AUTO, the recording system is automatically selected according to the type of cassette you are using.
— Hi8 cassette recorded in the Hi8 system.
— Standard 8 mm cassette recorded in the standard 8 mm system.

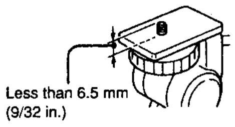
If you want to record on a Hi8 cassette in the standard 8mm system, set the **Hi8** AUTO/OFF switch to OFF.
If you are going to play back the tape using a standard 8 mm video recorder, you should record the tape in the standard 8 mm system.

To Record in	Use Cassette Type	Set the **Hi8** AUTO/OFF switch to
Hi8 **Hi8** system	Hi8 type	AUTO
Standard 8mm 8 system	Hi8 type	OFF
	Standard 8mm type	AUTO or OFF

(U-1)



(U-2)



Hints for Better Shooting

Getting Stable Pictures

(U-1)
Take a good posture for shooting.
For hand-held shots, it is important to hold the camcorder properly.

- Hold the camcorder firmly and secure it with the grip strap so that you can easily operate the camcorder with your thumb.
- Place your right elbow firmly against your side.
- Place your left hand under the camcorder to support it. When adjusting the focus manually, make sure the camcorder does not move.
- Place your eye firmly against the viewfinder eyecup.

Use a tripod.
If you have a tripod for a still camera, you can also use it with the camcorder. If a tripod is not available, try placing the camcorder on a tabletop or any other flat surface of suitable height.

(U-2)
Caution
When attaching a tripod other than Sony's, make sure that the length of the camera mounting screw is less than 6.5 mm. Otherwise, the screw may damage the inner parts of the camcorder.

Keep the horizontal plane level.
The horizontal plane can be easily determined by using the viewfinder frame as a reference.

Lighting

Shoot with the sun behind you.
When the light source is behind the subject, or in the following situations, the subject will be recorded too dark and the background too light.

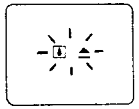
- The subject is indoors and there is a window behind the subject.
- Bright sources such as fluorescent or incandescent lamps are included in the scene.
- You are shooting a person wearing white or shiny clothes in front of a white background. In this case, the face will be recorded too dark.

Use video lights in the dark.
To get the best colour, you must maintain a sufficient light level.

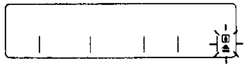
Maintenance and Precautions

Moisture Condensation

(V-1)



In the viewfinder



In the display window

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

If moisture condenses inside the camcorder

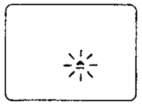
(V-1)

Moisture is present inside the camcorder when:

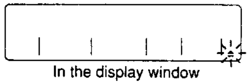
- the ▣ indicator in the viewfinder and the display window flashes.
  When the tape is inserted, the ⏏ indicator also flashes.
- beeps sound continuously for about 5 seconds when the BEEP switch is set to ON.

In such cases, no function except for tape ejection will work.
Eject the tape, turn off the camcorder, and leave it with the cassette holder open for at least 1 hour.
The camcorder can be used again if the ▣ indicator does not appear when the power is turned on again.

(V-2)



In the viewfinder



In the display window

If moisture condenses on the surface of the tape

(V-2)

Moisture is present on the surface of the tape when:

- the ⏏ indicator flashes inside the viewfinder and the display window when the tape is inserted and a tape transport button (▷, ◀◀ etc.) is pressed.
- beeps sound continuously for about 5 seconds when the BEEP switch is set to ON.

In such cases, no function except for tape ejection will work.
Eject the tape and let it sit for at least 1 hour.
The tape can be used again if the ⏏ indicator does not appear when the tape is inserted and a tape transport button is pressed.

If moisture condenses on the lens

No caution indicators will appear, but the picture becomes dim.
Turn off the power and do not use the camcorder for at least 1 hour.

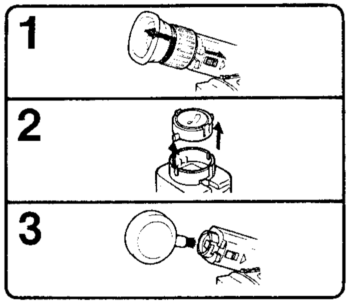
How to prevent moisture condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

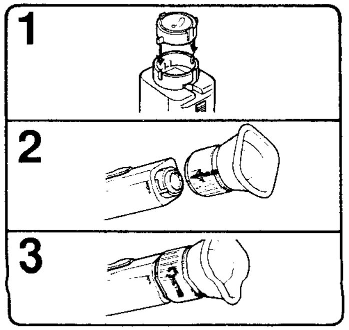
1 Be sure to tightly seal the plastic bag containing the camcorder.
2 Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

(V-3)

(V-4)



(V-5)



Video Head Cleaning

To ensure clear picture, clean the video heads periodically.
When playback pictures are noisy or hardly visible, the video heads may be contaminated. **(V-3)**
[a] Slight contamination
[b] Critical contamination
In such cases,

1 Clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied), referring to its instructions.
  If the V8-25CLH cleaning cassette is not available in your area, consult your Sony service facility.
2 After cleaning, check if the picture is clear by recording or playing back with an ordinary tape.
3 If the picture is still noisy, repeat cleaning. (Do not repeat cleaning more than 5 times.)

Caution
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Viewfinder Cleaning

(V-4)
Cleaning the viewfinder
1 While pressing the RELEASE knob on the viewfinder barrel down, turn the eyecup in the direction of the arrow, and detach it.
2 Remove the lens using a pointed object.
3 Clean the surface of the screen with a commercially available blower.

(V-5)
Reattaching the eyecup
1 Replace the lens. Do not place it upside down.
2 Align the groove on the eyecup with the ● mark on the barrel and insert the eyecup.
3 Turn the eyecup in the opposite direction of the arrow on the barrel.

Precautions

On operation

- Operate the camcorder on 6.0 V (battery pack), 7.5 V (AC power adaptor), or 9.0 V (alkaline batteries).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by qualified personnel before operating it any further.
- Do not hold the camcorder by the viewfinder or the microphone.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the lens cap attached on the lens when not using the camera.
- Do not wrap up the camcorder and operate it because heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- **Do not let sand get into the camcorder.**
  When you use the camcorder on a sandy beach or dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction and sometimes the malfunction cannot be repaired.
- **Do not let the camcorder get wet.**
  Keep the camcorder from rain or sea water. Water may cause malfunction and sometimes the malfunction cannot be repaired.

On care

- When the camcorder will not be used for a long time, periodically turn on the power, operate the camera section and player section and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, remove them with a soft cloth.
- Clean the camcorder body with a dry, soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Note on handling tapes
Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the type of tape, thickness of tape, or if red mark is exposed or covered,etc.

Using your Camcorder Abroad

Each country has its own electricity system and TV colour system. Before using your camcorder abroad, check the following points.

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Differences in Colour Systems

This camcorder is a PAL system based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV or a SECAM system based TV with PAL-SECAM transcoder. Check the following alphabetical list.

PAL system Countries
Australia, Austria, Belgium, China, Denmark, Finland, former West Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, and others.

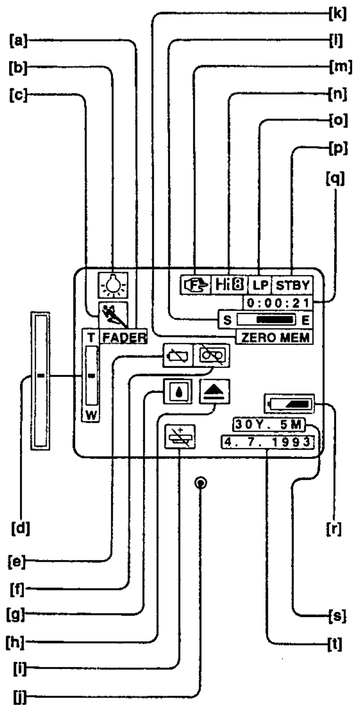
PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

NTSC system countries
Bahama Islands, Canada, Central America, Japan, Korea, Mexico, Taiwan, The Philippines, U.S.A., and others.

SECAM system countries
Bulgaria, France, Hungary, Iran, Iraq, Monaco, Poland, former Soviet Union, and others.

(W-1)


[a]
[b]
[c]
[d]
[e]
[f]
[g]
[h]
[i]
[j]
[k]
[l]
[m]
[n]
[o]
[p]
[q]
[r]
[s]
[t]
Hi8
LP
STBY
0:00:21
S
E
ZERO MEM
T
FADER
W
30Y. 5M
4. 7. 1993

Indicators in the Viewfinder and the Display Window

In the Viewfinder

(W-1)

[a] FADER is pressed.

[b] White balance indicator (☀, ☼, HOLD)

[c] PROGRAM AE indicator (👥, ⛷)/Shutter speed indicator

[d] Power zoom indicator/Exposure indicator

[e] "Replace battery." (▭)

[f] "Replace tape or no tape inside." (⊡)

[g] Moisture has condensed. (▣)

[h] "Trouble has occurred". (⏏)
"Clean video heads." (⊗)

[i] "Replace lithium battery". (⊕)

[j] Lights up during recording.
When flashing: "Replace battery or tape."

[k] ZERO MEM is pressed.

[l] Remaining tape length indicator/Title mode

[m] Manual focusing (⊛)

[n] Hi8 mode indicator

[o] Recording/Playback mode (SP/LP)

[p] Tape transport mode

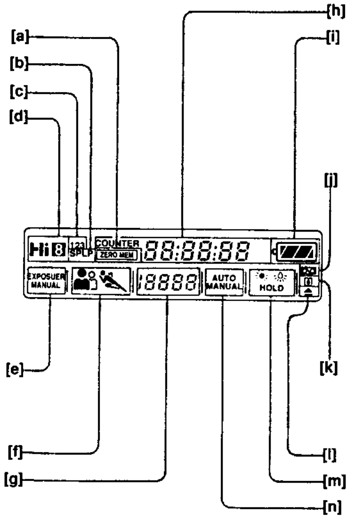
[q] Tape counter

[r] Remaining battery indicator

[s] Age

[t] Date or time

(W-2)


[a]
[b]
[c]
[d]
[e]
[f]
[g]
[h]
[i]
[j]
[k]
[l]
[m]
[n]
Hi8
123
SP LP
COUNTER
ZERO MEM
88:88:88
EXPOSURE MANUAL
8888
AUTO MANUAL
HOLD

Indicators in the Viewfinder and the Display Window

In the Display Window

(W-2)

[a] ZERO MEM is pressed.

[b] Recording/Playback mode (SP/LP)

[c] AGE/EVENT memory number

[d] Hi8 mode indicator

[e] Adjusting exposure manually

[f] Program AE indicator

[g] Shutter speed

[h] Time, date, age or tape counter
(when COUNTER is on) indicator

[i] Remaining capacity of battery

[j] "Replace the tape or no tape inside."

[k] "Moisture has condensed."

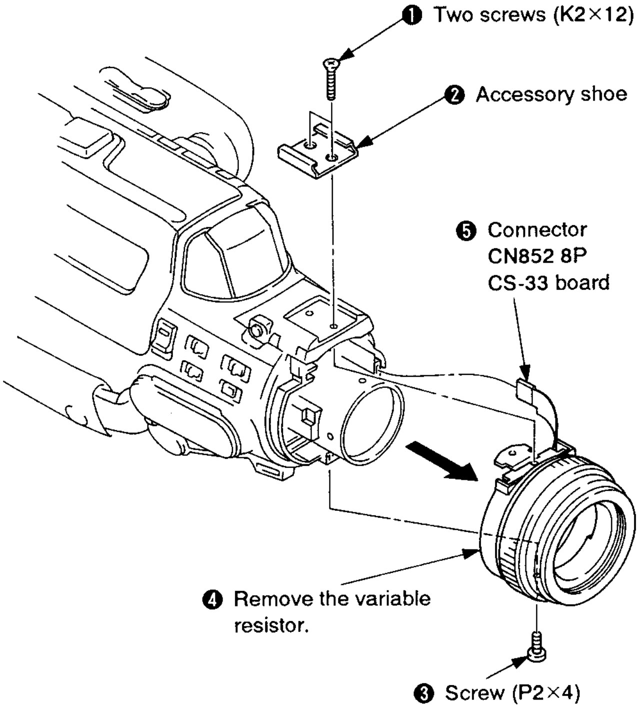
[l] "Trouble has occurred."

[m] White-balance indicator

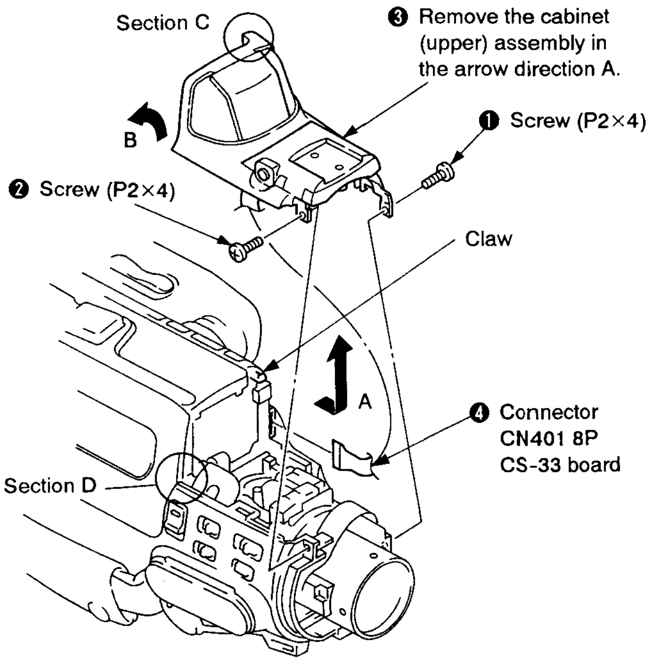
[n] Focus mode

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF VARIABLE RESISTOR

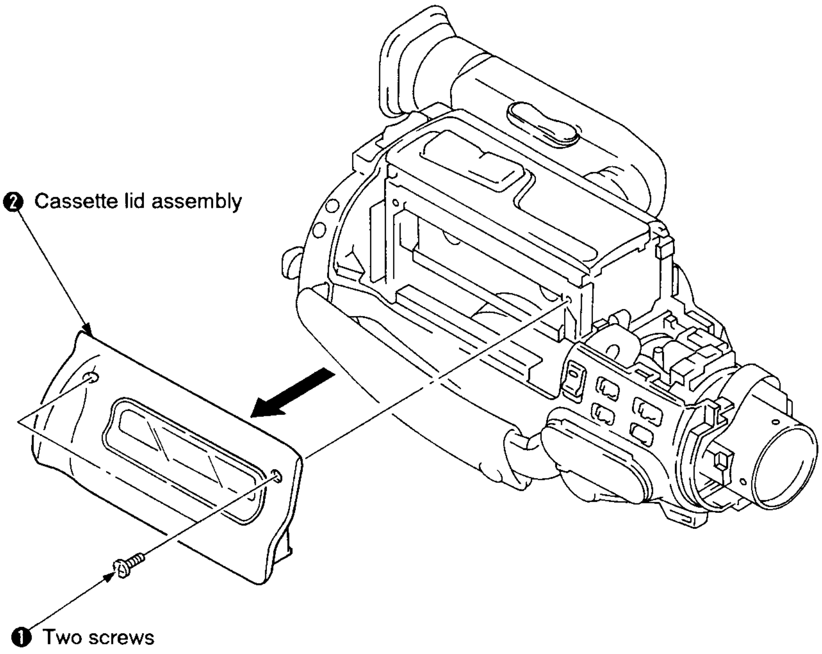

❶ Two screws (K2×12)
❷ Accessory shoe
❺ Connector
CN852 8P
CS-33 board
❹ Remove the variable
resistor.
❸ Screw (P2×4)

2-2. REMOVAL OF CABINET (UPPER) ASSEMBLY

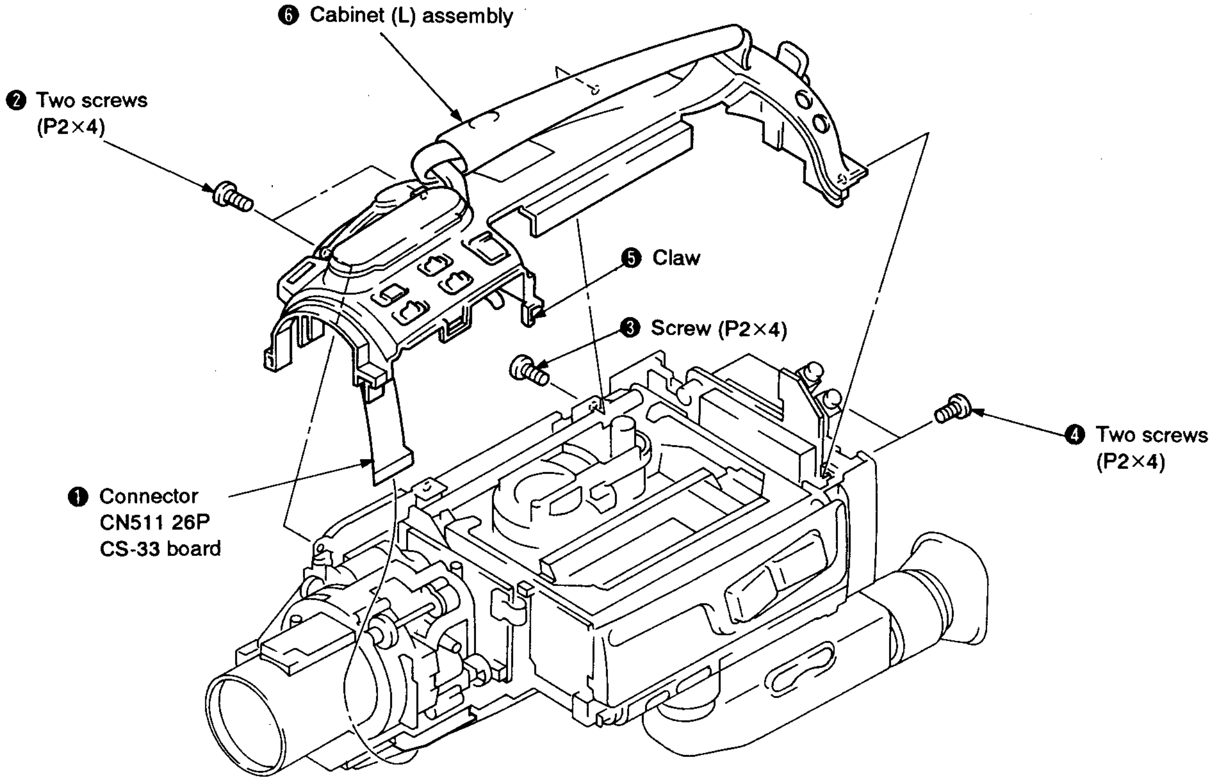

Section C
❸ Remove the cabinet
(upper) assembly in
the arrow direction A.
B
❶ Screw (P2×4)
❷ Screw (P2×4)
Claw
A
❹ Connector
CN401 8P
CS-33 board
Section D

* If the section D can not be slided even the claw of the section C has been removed, remove it by sliding in the direction of arrow A while pressing the upper cabinet in the direction of B.

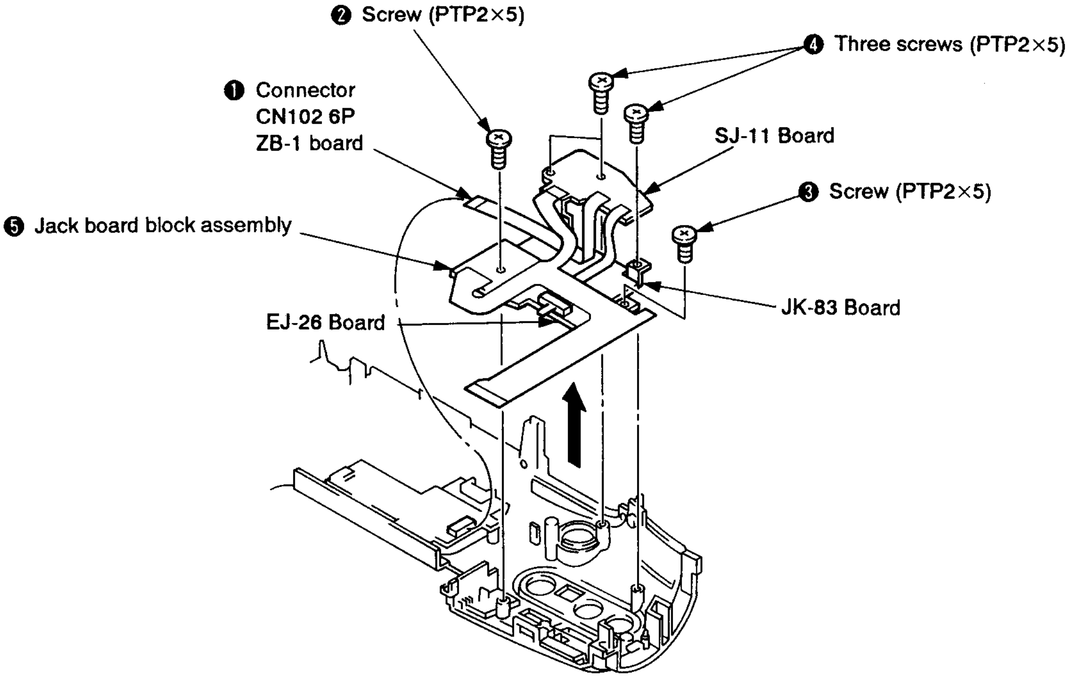
2-3. REMOVAL OF CASSETTE LID ASSEMBLY


❷ Cassette lid assembly
❶ Two screws

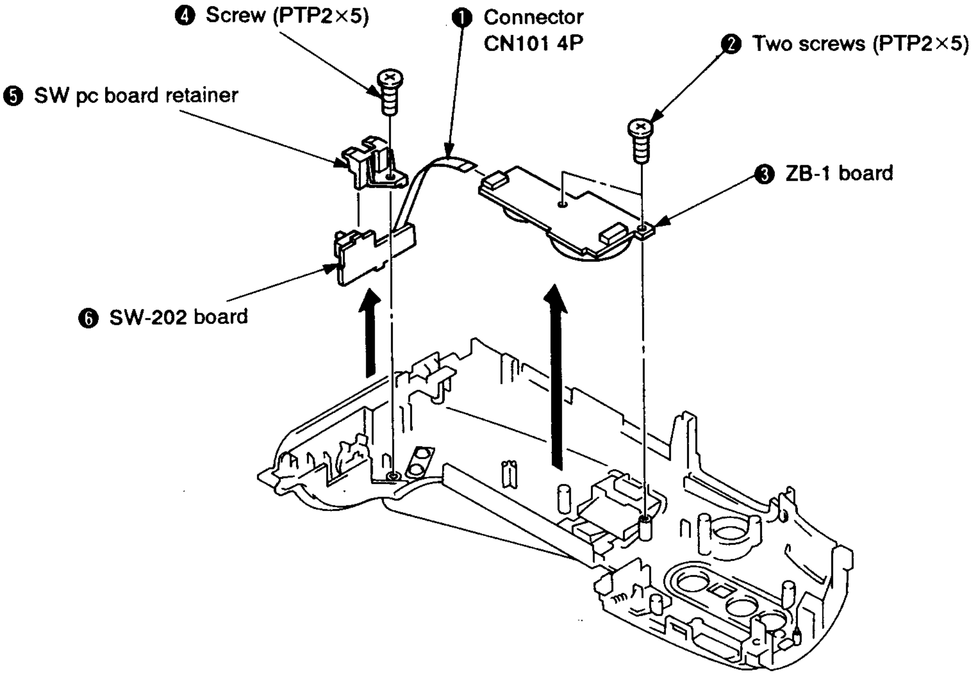
2-4. REMOVAL OF CABINET (L) ASSEMBLY


❻ Cabinet (L) assembly
❷ Two screws (P2×4)
❺ Claw
❸ Screw (P2×4)
❹ Two screws (P2×4)
❶ Connector CN511 26P CS-33 board

2-5. REMOVAL OF JACK BOARD BLOCK ASSEMBLY (EJ-26 BOARD, SJ-11 BOARD, JK-83 BOARD)

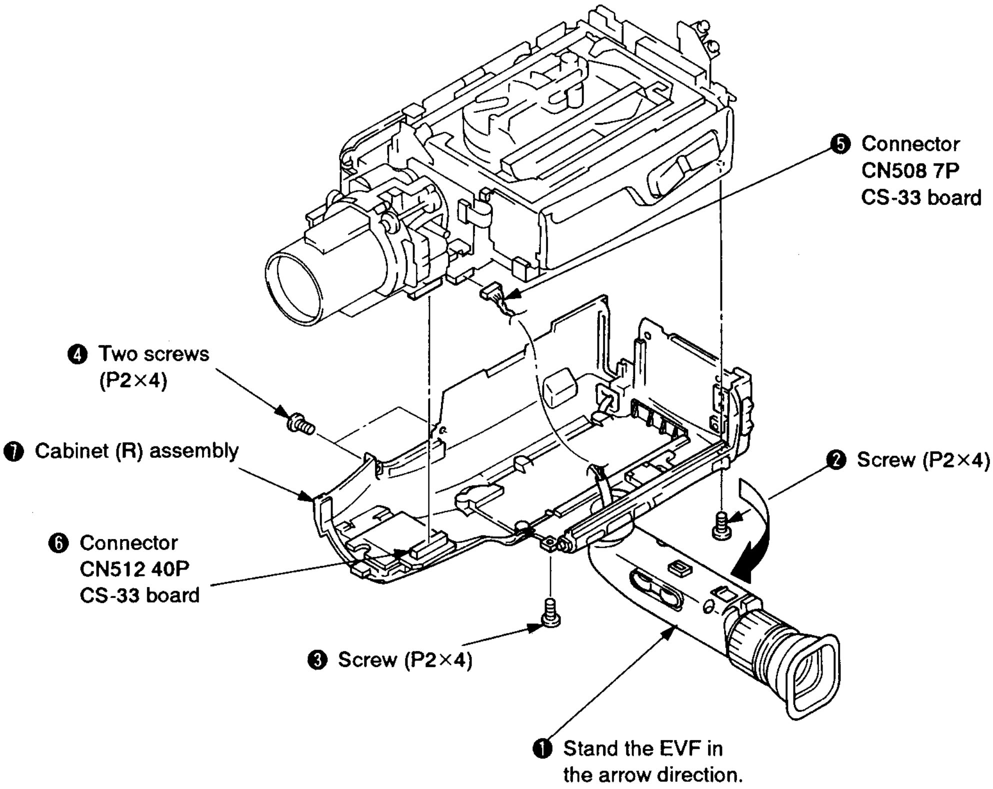

❷ Screw (PTP2×5)
❹ Three screws (PTP2×5)
❶ Connector CN102 6P ZB-1 board
SJ-11 Board
❸ Screw (PTP2×5)
❺ Jack board block assembly
JK-83 Board
EJ-26 Board

2-6. REMOVAL OF ZB-1 BOARD AND SW-202 BOARD



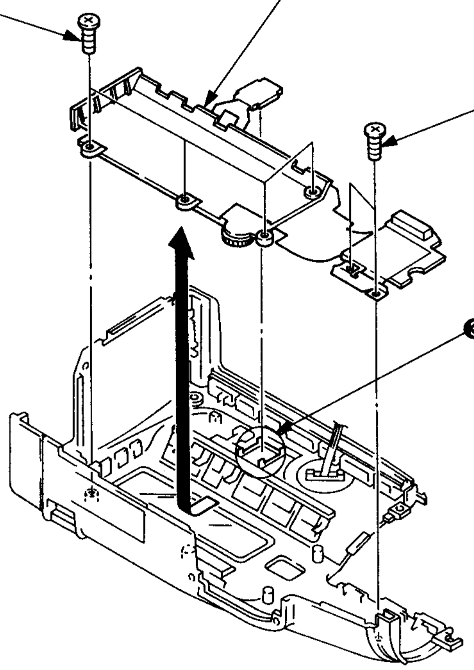
❹ Screw (PTP2×5)
❶ Connector CN101 4P
❷ Two screws (PTP2×5)
❺ SW pc board retainer
❸ ZB-1 board
❻ SW-202 board

2-7. REMOVAL OF CABINET (R) ASSEMBLY



❺ Connector CN508 7P CS-33 board
❹ Two screws (P2×4)
❼ Cabinet (R) assembly
❷ Screw (P2×4)
❻ Connector CN512 40P CS-33 board
❸ Screw (P2×4)
❶ Stand the EVF in the arrow direction.

2-8. REMOVAL OF CONTROL SWITCH BLOCK ASSEMBLY



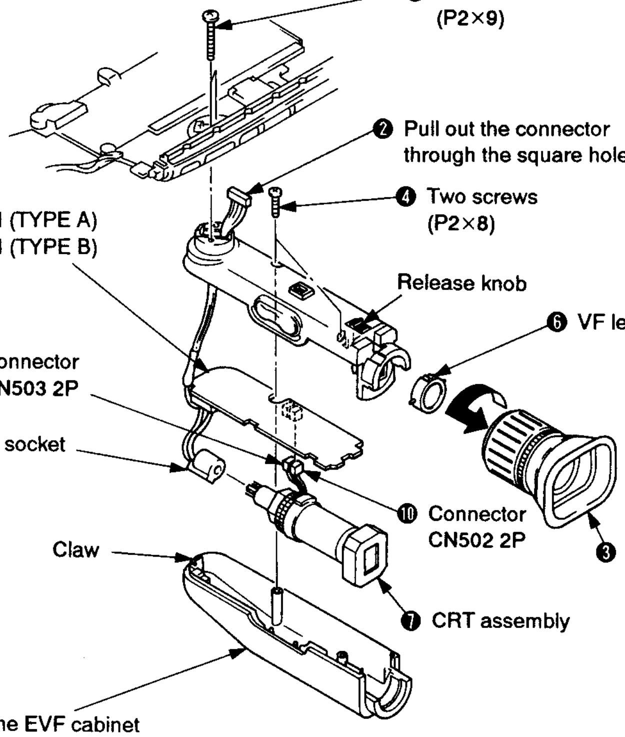
④ Remove the contorl switch block assembly in the arrow direction.

② Four screws (PTP2×5)

① Two screws (PTP2×5)

③ Four claws

2-9. REMOVAL OF EVF ASSEMBLY (VF-44 BOARD) (TYPE A) (VF-51 BOARD) (TYPE B)



① Two screws (P2×9)

② Pull out the connector through the square hole.

④ Two screws (P2×8)

⑪ VF-44 board (TYPE A) VF-51 board (TYPE B)

Release knob

⑥ VF lens assembly

⑨ Connector CN503 2P

⑧ CRT socket

⑩ Connector CN502 2P

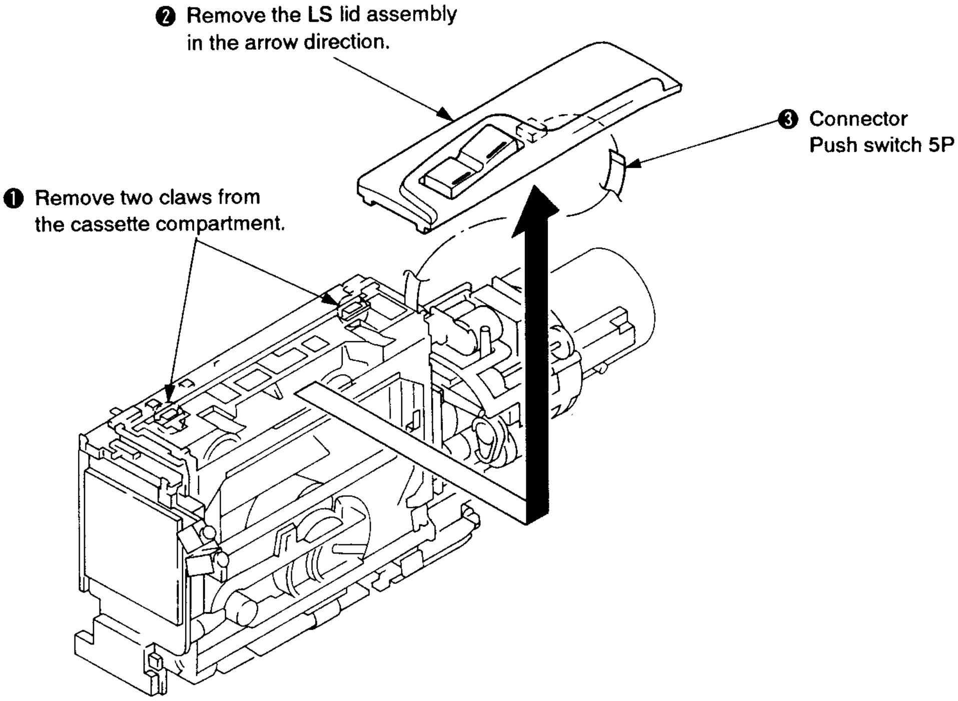
Claw

③ Remove the finder holder block assembly in the arrow direction.
(Slide the release knob.
In this condition, rotate the finder holder to the marked line and remove it in the direction of arrow.)

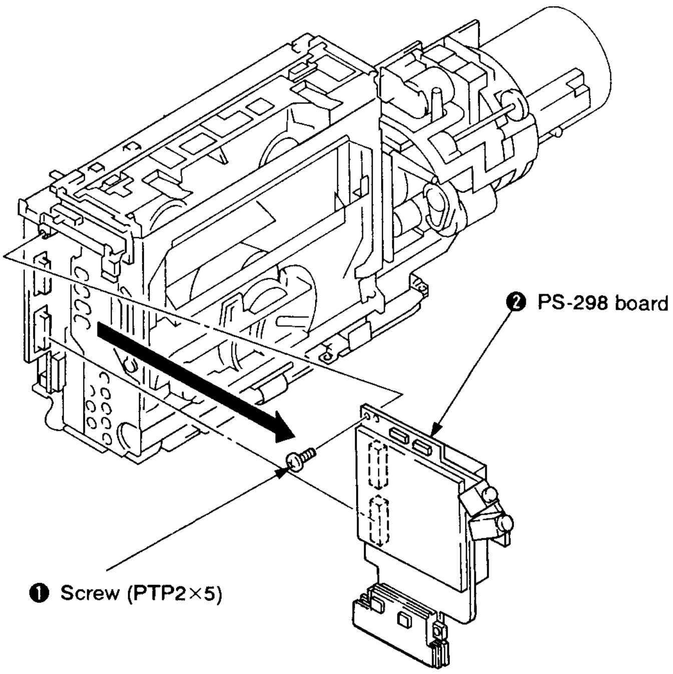
⑦ CRT assembly

⑤ Remove the EVF cabinet (R) lifting up with the claw as it's fulcrum.

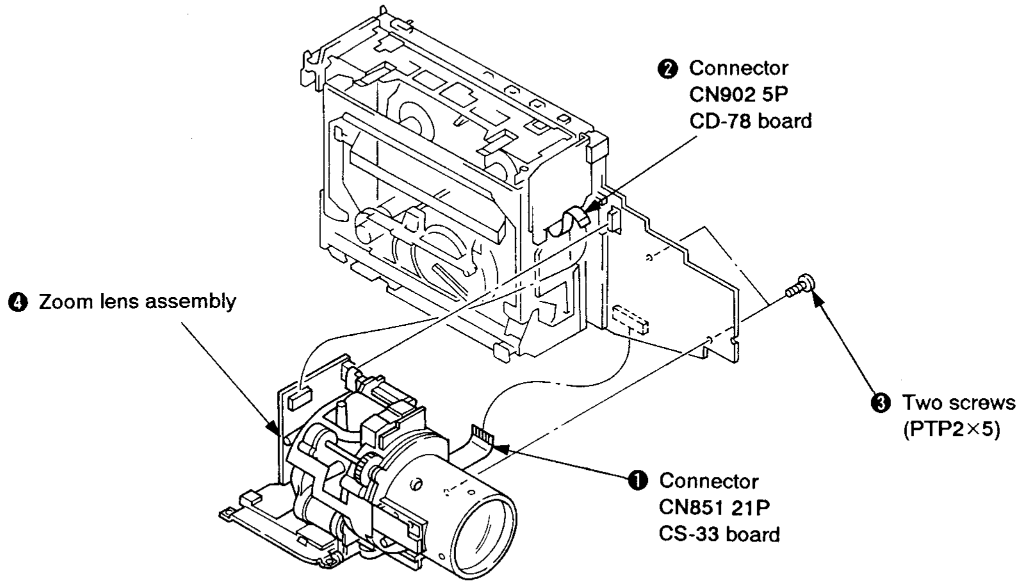
2-10. REMOVAL OF LS LID ASSEMBLY


❷ Remove the LS lid assembly in the arrow direction.
❸ Connector Push switch 5P
❶ Remove two claws from the cassette compartment.

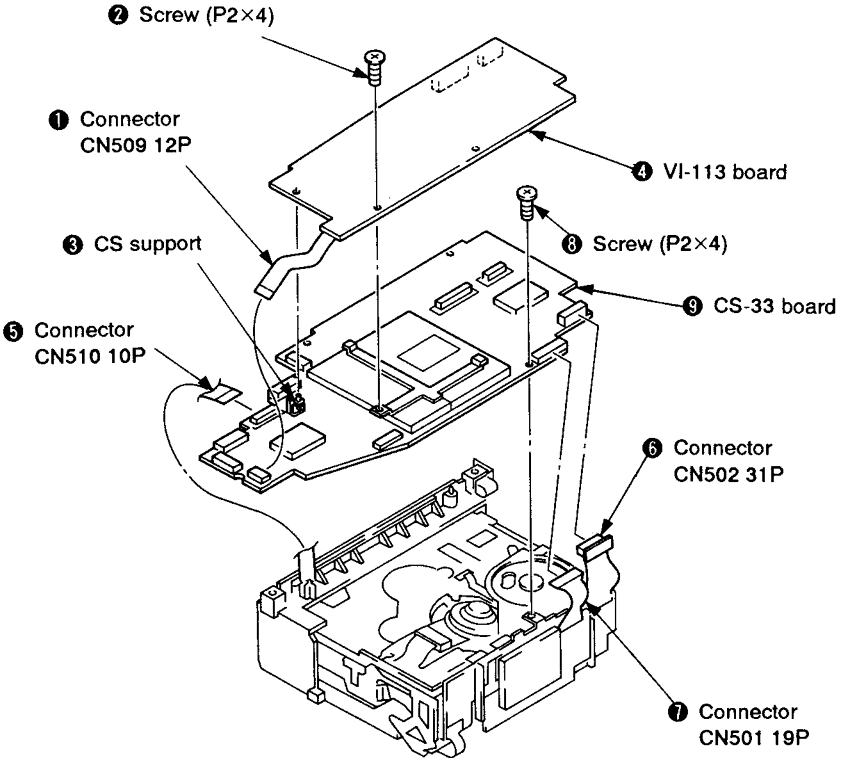
2-11. REMOVAL OF PS-298 BOARD


❷ PS-298 board
❶ Screw (PTP2×5)

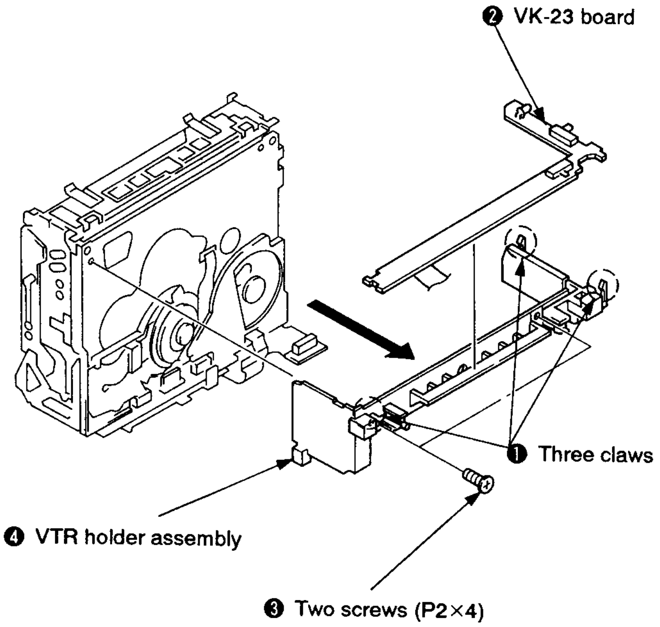
2-12. REMOVAL OF ZOOM LENS ASSEMBLY


❷ Connector
CN902 5P
CD-78 board
❹ Zoom lens assembly
❸ Two screws
(PTP2×5)
❶ Connector
CN851 21P
CS-33 board

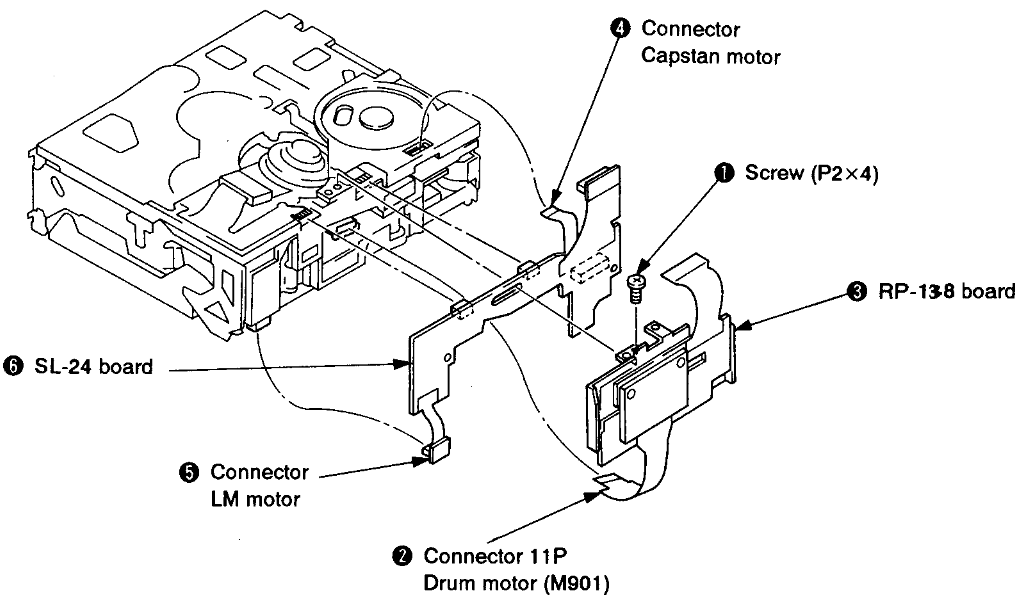
2-13. REMOVAL OF VI-113 BOARD AND CS-33 BOARD


❷ Screw (P2×4)
❶ Connector
CN509 12P
❹ VI-113 board
❸ CS support
❽ Screw (P2×4)
❾ CS-33 board
❺ Connector
CN510 10P
❻ Connector
CN502 31P
❼ Connector
CN501 19P

2-14. REMOVAL OF VK-23 BOARD AND VTR HOLDER ASSEMBLY

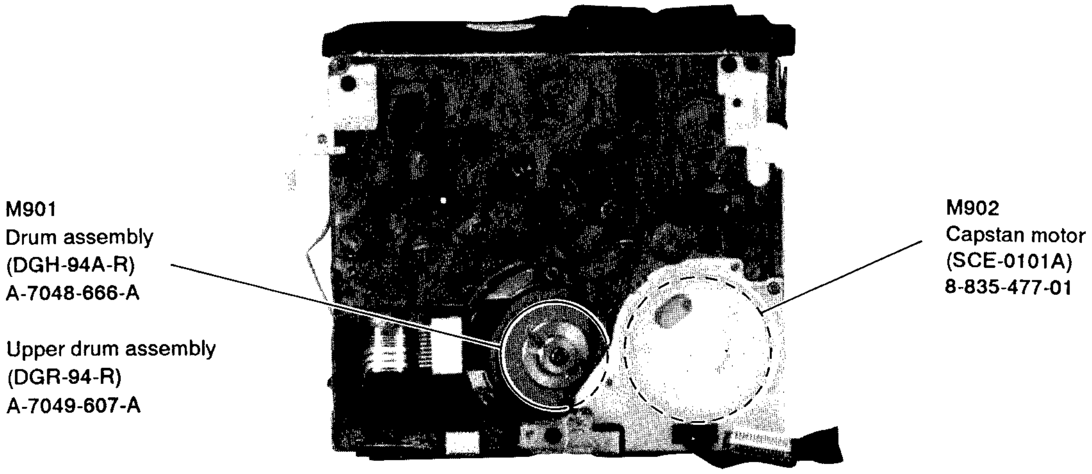

❷ VK-23 board
❶ Three claws
❹ VTR holder assembly
❸ Two screws (P2×4)

2-15. REMOVAL OF RP-138 BOARD AND SL-24 BOARD

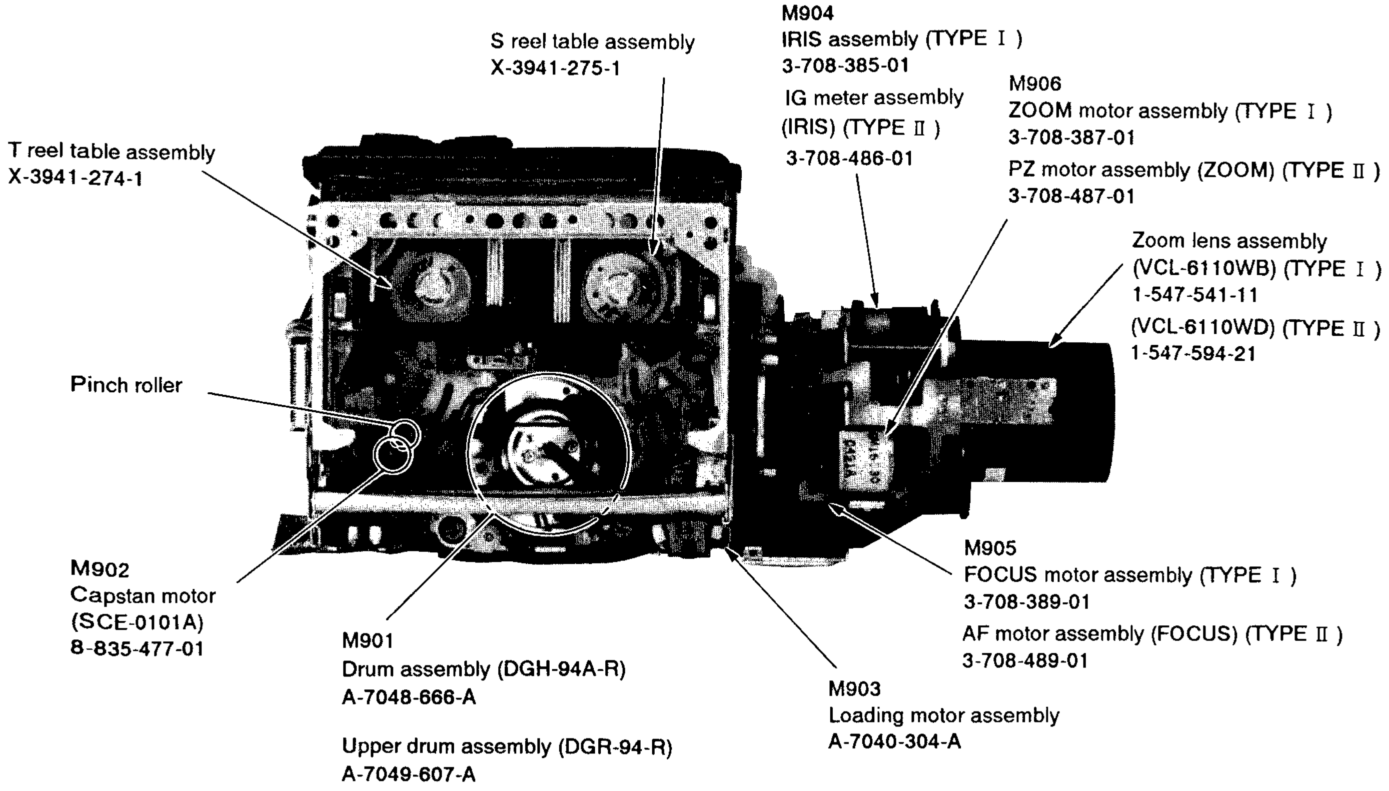

❹ Connector
Capstan motor
❶ Screw (P2×4)
❸ RP-138 board
❻ SL-24 board
❺ Connector
LM motor
❷ Connector 11P
Drum motor (M901)

2-16. INTERNAL VIEWS

— Right side —

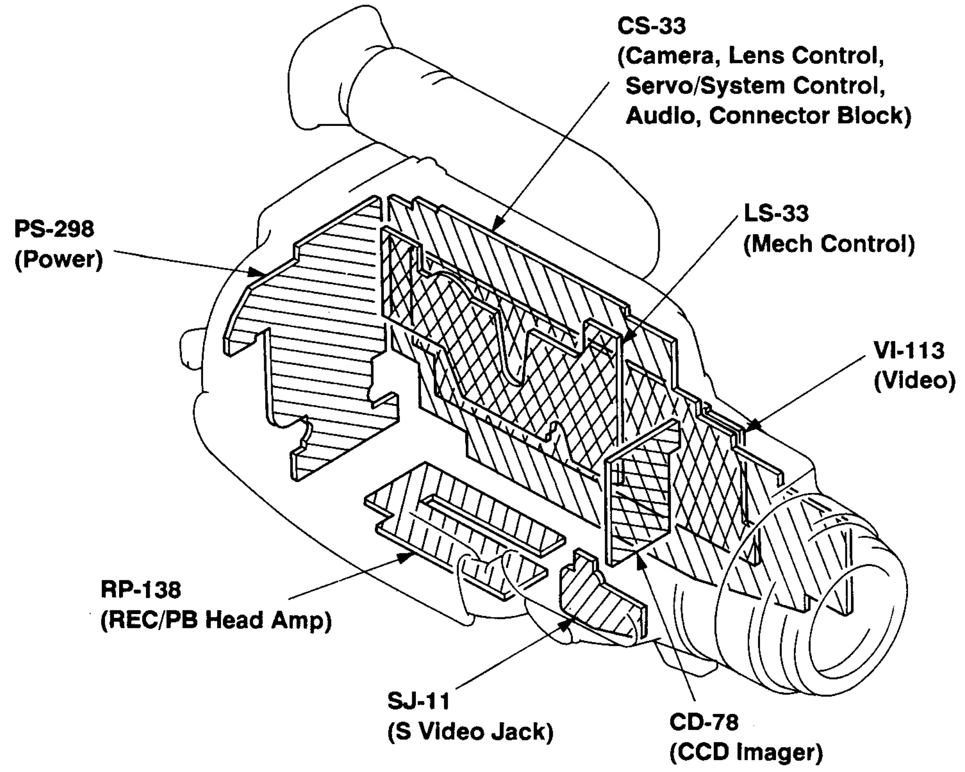

M901
Drum assembly
(DGH-94A-R)
A-7048-666-A
Upper drum assembly
(DGR-94-R)
A-7049-607-A
M902
Capstan motor
(SCE-0101A)
8-835-477-01

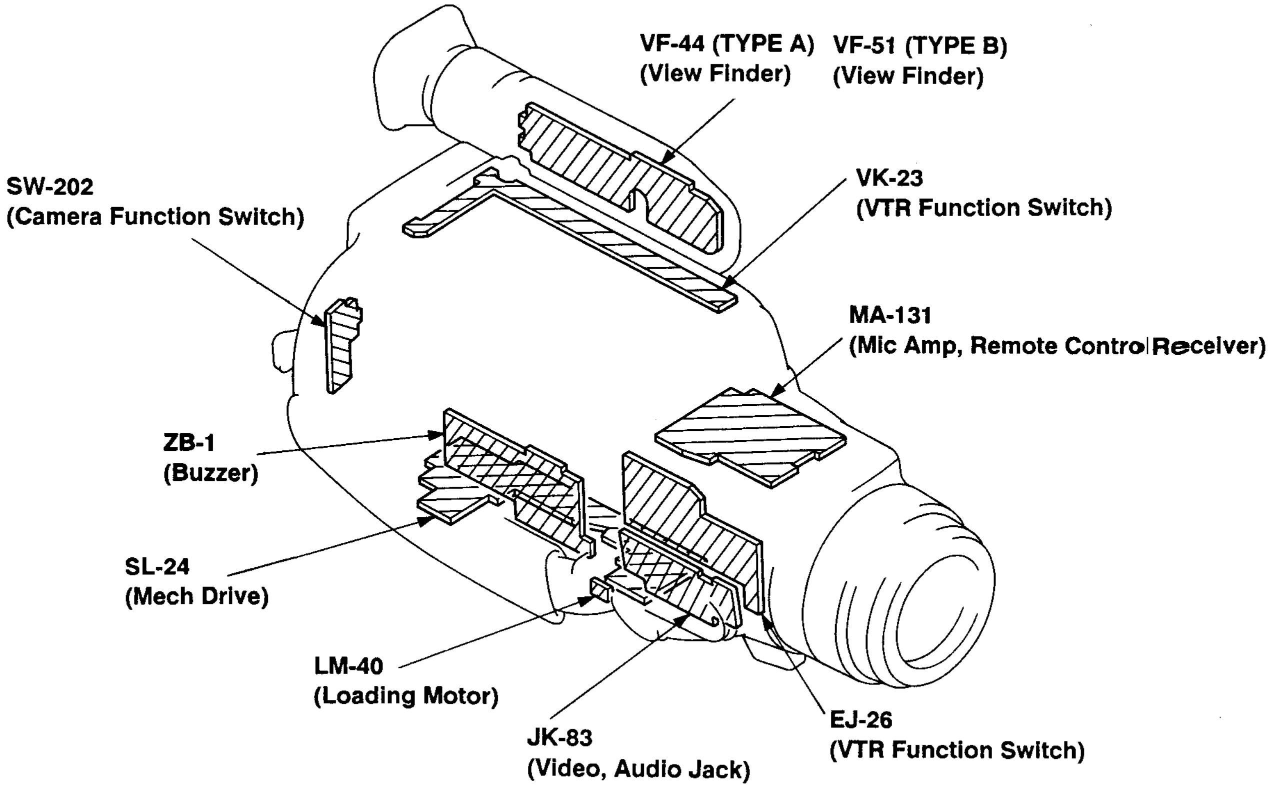
— Left side —


S reel table assembly
X-3941-275-1
M904
IRIS assembly (TYPE I)
3-708-385-01
IG meter assembly
(IRIS) (TYPE II)
3-708-486-01
M906
ZOOM motor assembly (TYPE I)
3-708-387-01
PZ motor assembly (ZOOM) (TYPE II)
3-708-487-01
T reel table assembly
X-3941-274-1
Zoom lens assembly
(VCL-6110WB) (TYPE I)
1-547-541-11
(VCL-6110WD) (TYPE II)
1-547-594-21
Pinch roller
M902
Capstan motor
(SCE-0101A)
8-835-477-01
M901
Drum assembly (DGH-94A-R)
A-7048-666-A
Upper drum assembly (DGR-94-R)
A-7049-607-A
M905
FOCUS motor assembly (TYPE I)
3-708-389-01
AF motor assembly (FOCUS) (TYPE II)
3-708-489-01
M903
Loading motor assembly
A-7040-304-A

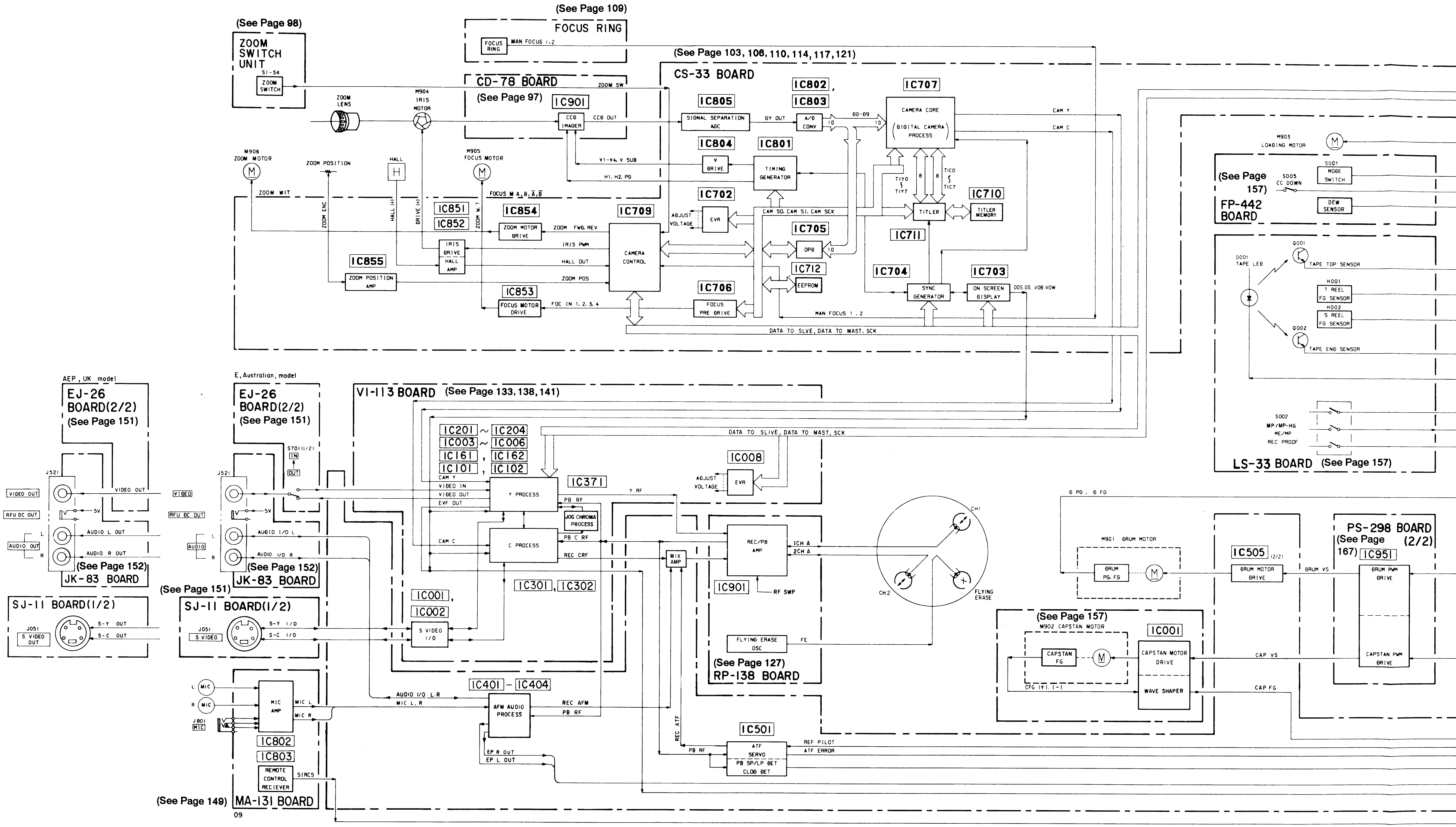
SECTION 3
DIAGRAMS

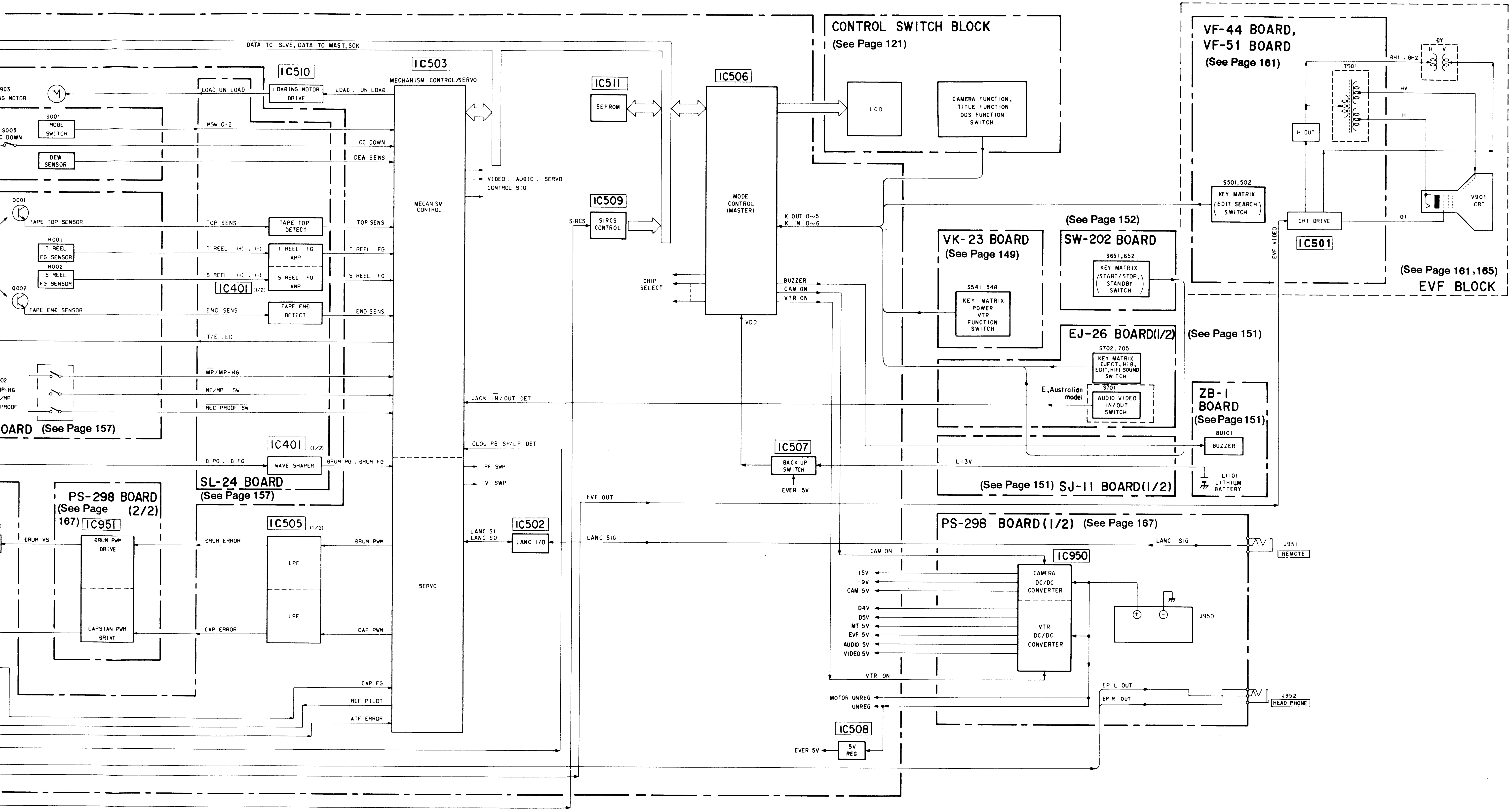
3-1. CIRCUIT BOARDS LOCATION


CS-33
(Camera, Lens Control,
Servo/System Control,
Audio, Connector Block)
PS-298
(Power)
LS-33
(Mech Control)
VI-113
(Video)
RP-138
(REC/PB Head Amp)
SJ-11
(S Video Jack)
CD-78
(CCD Imager)

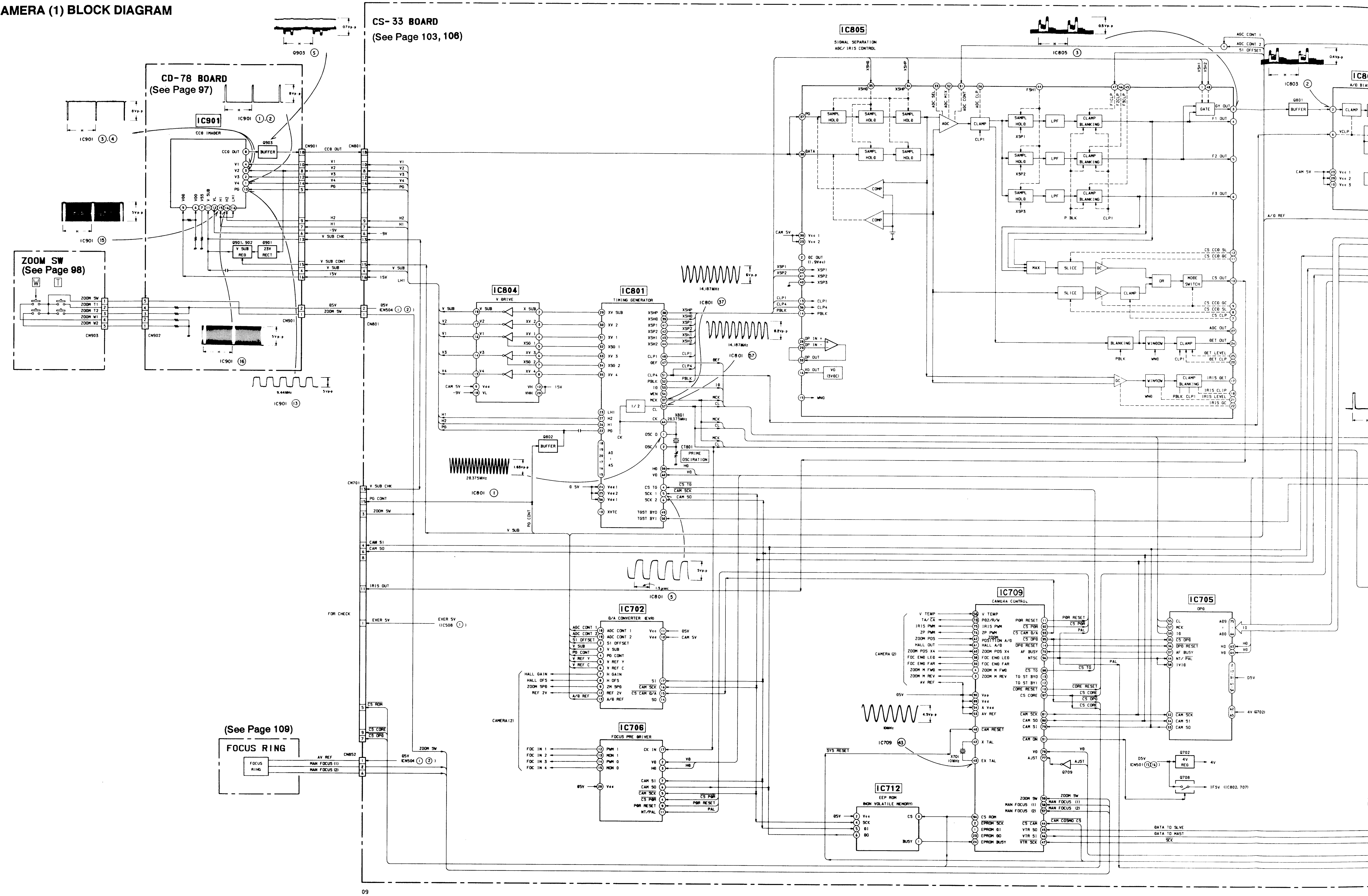

VF-44 (TYPE A)
(View Finder)
VF-51 (TYPE B)
(View Finder)
SW-202
(Camera Function Switch)
VK-23
(VTR Function Switch)
MA-131
(Mic Amp, Remote Control Receiver)
ZB-1
(Buzzer)
SL-24
(Mech Drive)
LM-40
(Loading Motor)
JK-83
(Video, Audio Jack)
EJ-26
(VTR Function Switch)

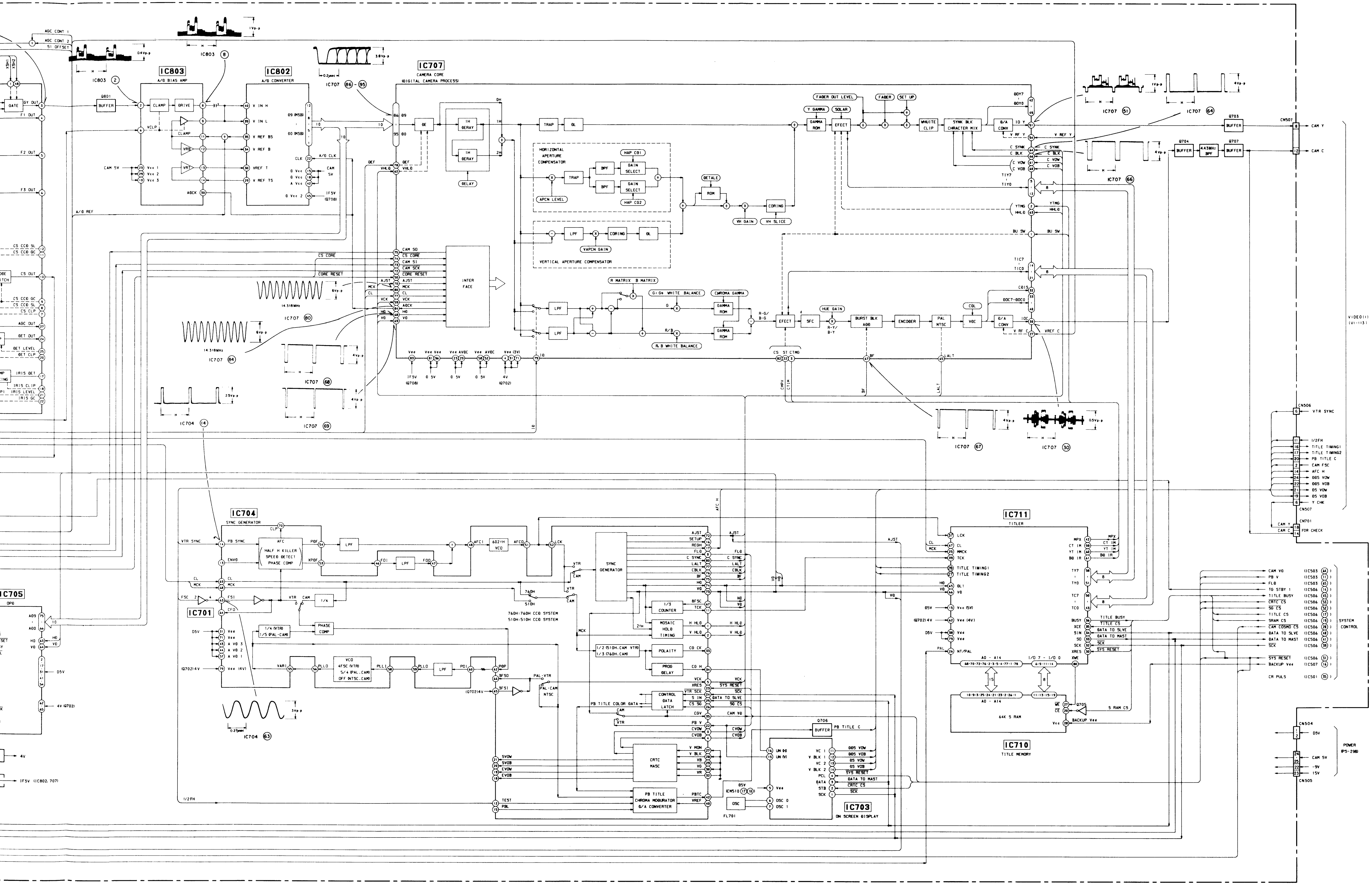
3-2. OVERALL BLOCK DIAGRAM


(See Page 98)
ZOOM SWITCH UNIT
S1-S4
ZOOM SWITCH
(See Page 109)
FOCUS RING
FOCUS RING
MAN FOCUS 1,2
CD-78 BOARD
(See Page 97)
IC901
ZOOM SW
CCD IMAGER
CCD OUT
ZOOM LENS
M904 IRIS MOTOR
M906 ZOOM MOTOR
ZOOM POSITION
HALL
M905 FOCUS MOTOR
ZOOM WIT
ZOOM ENC
HALL (+)
DRIVE (+)
ZOOM W.T
FOCUS M A, B, A, B
V1-V4, V SUB
H1, H2, PG
(See Page 103, 106, 110, 114, 117, 121)
CS-33 BOARD
IC805
SIGNAL SEPARATION AGC
GY OUT
IC802, IC803
A/D CONV
D0-D9
10
IC707
CAMERA CORE
DIGITAL CAMERA PROCESS
CAM Y
CAM C
IC804
V DRIVE
IC801
TIMING GENERATOR
TIY0 ~ TIY7
TIC0 ~ TIC7
8
IC702
EVR
ADJUST VOLTAGE
CAM SO, CAM SI, CAM SCK
IC710
TITLER
TITLER MEMORY
IC711
IC851
IC852
IRIS DRIVE
HALL AMP
IC854
ZOOM MOTOR DRIVE
ZOOM FWD, REV
IRIS PWM
HALL OUT
IC709
CAMERA CONTROL
ZOOM POS
IC855
ZOOM POSITION AMP
IC853
FOCUS MOTOR DRIVE
FOC IN 1, 2, 3, 4
IC705
OPD
IC712
EEPROM
IC706
FOCUS PRE DRIVE
MAN FOCUS 1, 2
IC704
SYNC GENERATOR
IC703
ON SCREEN DISPLAY
DDS, DS VDB, VDW
DATA TO SLVE, DATA TO MAST, SCK
M903 LOADING MOTOR
(See Page 157)
FP-442 BOARD
S005 CC DOWN
S001 MODE SWITCH
DEW SENSOR
D001 TAPE LED
Q001 TAPE TOP SENSOR
H001 T REEL FG SENSOR
H002 S REEL FG SENSOR
Q002 TAPE END SENSOR
S002 MP/MP-HG ME/MP REC PROOF
LS-33 BOARD (See Page 157)
AEP, UK model
EJ-26 BOARD(2/2)
(See Page 151)
J521
VIDEO OUT
VIDEO OUT
RFU DC OUT
5V
AUDIO L OUT
AUDIO R OUT
AUDIO OUT
L
R
(See Page 152)
JK-83 BOARD
E, Australian, model
EJ-26 BOARD(2/2)
(See Page 151)
S701(1/2)
IN
OUT
VIDEO
RFU DC OUT
AUDIO
AUDIO I/O L
AUDIO I/O R
(See Page 152)
JK-83 BOARD
SJ-11 BOARD(1/2)
J051
S VIDEO OUT
S-Y OUT
S-C OUT
(See Page 151)
SJ-11 BOARD(1/2)
J051
S VIDEO
S-Y I/O
S-C I/O
VI-113 BOARD (See Page 133, 138, 141)
IC201 ~ IC204
IC003 ~ IC006
IC161, IC162
IC101, IC102
CAM Y
VIDEO IN
VIDEO OUT
EVF OUT
Y PROCESS
IC371
Y RF
PB RF
JOG CHROMA PROCESS
CAM C
C PROCESS
PB C RF
REC CRF
IC301, IC302
DATA TO SLIVE, DATA TO MAST, SCK
IC008
EVR
ADJUST VOLTAGE
IC001, IC002
S VIDEO I/O
MIX AMP
REC/PB AMP
1CH A
2CH A
IC901
RF SWP
FLYING ERASE OSC
FE
(See Page 127)
RP-138 BOARD
CH1
CH2
FLYING ERASE
MIC L
MIC R
J801 MIC
MIC AMP
MIC L
MIC R
IC802
IC803
REMOTE CONTROL RECIEVER
SIRCS
(See Page 149) MA-131 BOARD
09
AUDIO I/O L,R
MIC L,R
IC401 - IC404
AFM AUDIO PROCESS
REC AFM
PB RF
EP R OUT
EP L OUT
REC ATF
PB RF
IC501
ATF SERVO
PB SP/LP DET
CLOG DET
REF PILOT
ATF ERROR
D PG, D FG
M901 DRUM MOTOR
DRUM PG, FG
IC505 (2/2)
DRUM MOTOR DRIVE
DRUM VS
PS-298 BOARD (2/2)
(See Page 167)
IC951
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
(See Page 157)
M902 CAPSTAN MOTOR
CAPSTAN FG
IC001
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CFG (+), (-)
CAP VS
CAP FG


DATA TO SLVE, DATA TO MAST, SCK
IC510
LOADING MOTOR DRIVE
LOAD, UN LOAD
LOAD . UN LOAD
IC503
MECHANISM CONTROL/SERVO
MECANISM CONTROL
SERVO
IC511
EEPROM
IC506
MODE CONTROL (MASTER)
IC509
SIRCS CONTROL
SIRCS
CONTROL SWITCH BLOCK
(See Page 121)
LCD
CAMERA FUNCTION, TITLE FUNCTION DDS FUNCTION SWITCH
VF-44 BOARD, VF-51 BOARD
(See Page 161)
DY
H V
DH1 . DH2
T501
HV
H
H OUT
S501,502
KEY MATRIX (EDIT SEARCH) SWITCH
V901 CRT
CRT DRIVE
G1
IC501
EVF VIDEO
(See Page 161,165)
EVF BLOCK
903
G MOTOR
S001
MODE SWITCH
S005
C DOWN
DEW SENSOR
MSW 0-2
CC DOWN
DEW SENS
VIDEO . AUDIO . SERVO CONTROL SIG.
Q001
TAPE TOP SENSOR
TOP SENS
TAPE TOP DETECT
TOP SENS
H001
T REEL FG SENSOR
H002
S REEL FG SENSOR
T REEL (+) . (-)
T REEL FG AMP
T REEL FG
S REEL (+) . (-)
S REEL FG AMP
S REEL FG
IC401 (1/2)
Q002
TAPE END SENSOR
END SENS
TAPE END DETECT
END SENS
T/E LED
02
P-HG
/MP
PROOF
MP/MP-HG
ME/MP SW
REC PROOF SW
OARD (See Page 157)
K OUT 0~5
K IN 0~6
CHIP SELECT
BUZZER
CAM ON
VTR ON
VDD
(See Page 152)
VK-23 BOARD
(See Page 149)
S541 548
KEY MATRIX POWER VTR FUNCTION SWITCH
SW-202 BOARD
S651,652
KEY MATRIX (START/STOP, STANDBY) SWITCH
EJ-26 BOARD(1/2)
(See Page 151)
S702,705
KEY MATRIX EJECT, Hi8, EDIT,HiFi SOUND SWITCH
E,Australian model
S701
AUDIO VIDEO IN/OUT SWITCH
ZB-1 BOARD
(See Page 151)
BU101
BUZZER
L1101 LITHIUM BATTERY
JACK IN/OUT DET
CLOG PB SP/LP DET
IC401 (1/2)
D PG . D FG
WAVE SHAPER
DRUM PG . DRUM FG
RF SWP
V1 SWP
IC507
BACK UP SWITCH
EVER 5V
L13V
(See Page 151) SJ-11 BOARD(1/2)
SL-24 BOARD
(See Page 157)
PS-298 BOARD (2/2)
(See Page 167)
IC951
DRUM VS
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
IC505 (1/2)
DRUM ERROR
LPF
LPF
DRUM PWM
CAP ERROR
CAP PWM
EVF OUT
LANC SI
LANC SO
IC502
LANC I/O
LANC SIG
PS-298 BOARD(1/2) (See Page 167)
LANC SIG
J951
REMOTE
CAM ON
IC950
15V
-9V
CAM 5V
CAMERA DC/DC CONVERTER
D4V
D5V
MT 5V
EVF 5V
AUDIO 5V
VIDEO 5V
VTR DC/DC CONVERTER
J950
VTR ON
EP L OUT
EP R OUT
J952
HEAD PHONE
MOTOR UNREG
UNREG
CAP FG
REF PILOT
ATF ERROR
IC508
EVER 5V
5V REG

3-3. CAMERA (1) BLOCK DIAGRAM


CS-33 BOARD
(See Page 103, 106)
CD-78 BOARD
(See Page 97)
IC901
CCD IMAGER
Q903
BUFFER
Q901, 902
V SUB REG
Q901
23V RECT
ZOOM SW
(See Page 98)
W
T
CN903
CN902
CN901
CN801
CN701
IC804
V DRIVE
IC801
TIMING GENERATOR
IC805
SIGNAL SEPARATION
AGC/IRIS CONTROL
SAMPL HOLD
AGC
CLAMP
LPF
CLAMP BLANKING
GATE
COMP
MAX
SLICE
OR
MODE SWITCH
BLANKING
WINDOW
Q802
BUFFER
PRIME OSCIRATION
1/2
X801 28.375MHz
14.187MHz
28.375MHz
IC702
D/A CONVERTER (EVR)
IC706
FOCUS PRE DRIVER
IC709
CAMERA CONTROL
IC712
EEP ROM
(NON VOLATILE MEMORY)
IC705
DPO
X701 10MHz
Q702
4V REG
Q708
Q709
Q801
BUFFER
CLAMP
(See Page 109)
FOCUS RING
IC901 ③.④
IC901 ①.②
IC901 ⑮
IC901 ⑯
IC901 ⑬
Q903 ⑤
IC801 ①
IC801 ⑤
IC801 ㊲
IC801 (57)
IC805 ③
IC803 ②
IC709 ㊸
CAMERA (2)
FOR CHECK
EVER 5V
V SUB CHK
PG CONT
ZOOM 5W
CAM SI
CAM SO
IRIS OUT
CS ROM
CS CORE
CS DPO
AV REF
MAN FOCUS (1)
MAN FOCUS (2)
DATA TO SLVE
DATA TO MAST
SCK
SYS RESET
09

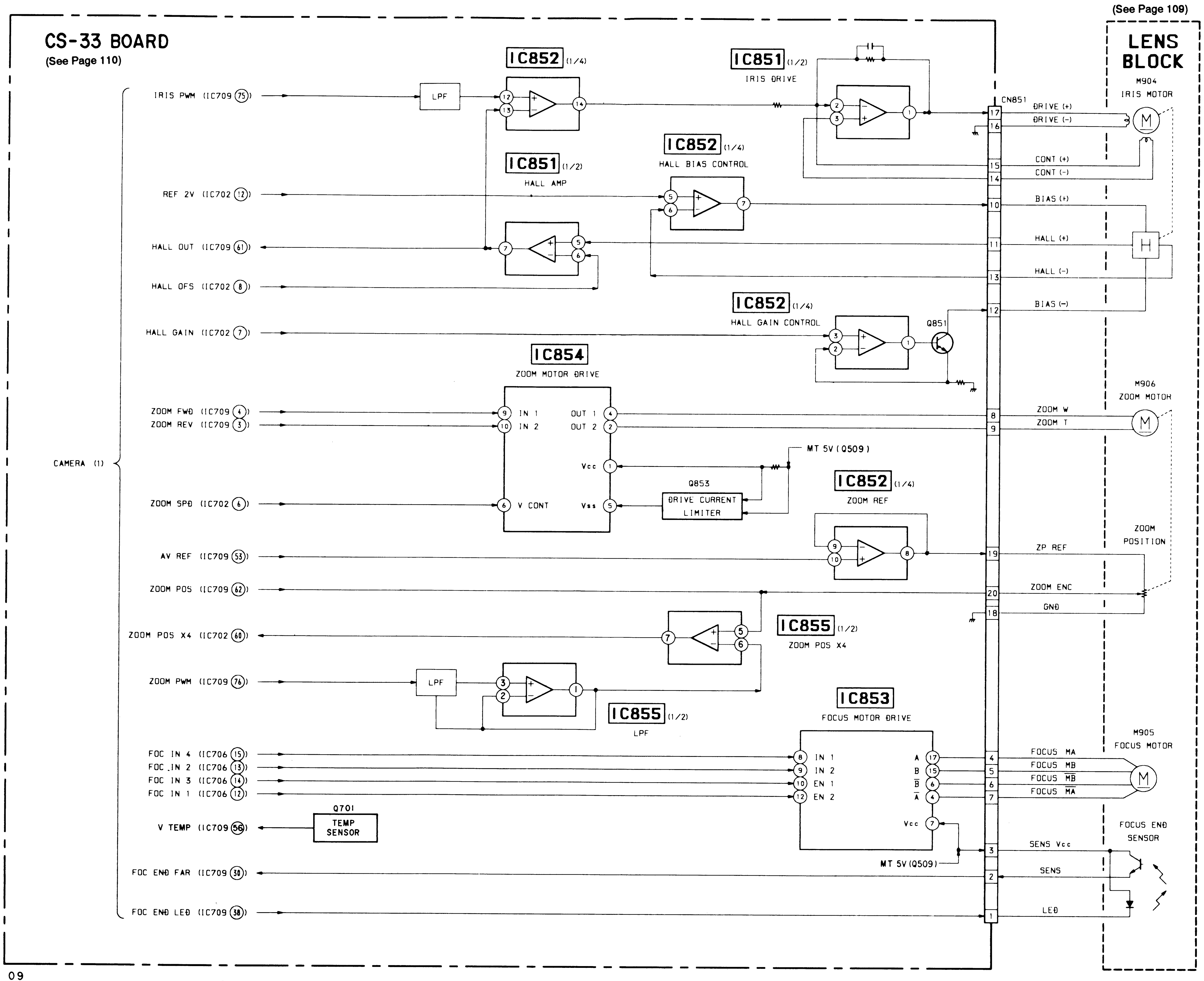


IC803
A/D BIAS AMP
IC802
A/D CONVERTER
IC707
CAMERA CORE
(DIGITAL CAMERA PROCESS)
IC704
SYNC GENERATOR
IC701
IC705
IC711
TITLER
IC710
TITLE MEMORY
IC703
ON SCREEN DISPLAY
HORIZONTAL APERTURE COMPENSATOR
VERTICAL APERTURE COMPENSATOR
INTER FACE
SYNC GENERATOR
CRTC MASC
PB TITLE CHROMA MODURATOR D/A CONVERTER
CONTROL DATA LATCH
64K S RAM
CN507
CN506
CN701
CN504
CN505
CAM Y
CAM C
VTR SYNC
VIDEO(1) (VI-113)
SYSTEM CONTROL
POWER (PS-298)
FOR CHECK
IC707 (51)
IC707 (64)
IC707 (66)
IC707 (67)
IC707 (30)
IC707 (80)
IC707 (84)
IC707 (68)
IC707 (69)
IC704 (14)
IC704 (63)
IC803 (2)
IC803 (8)
IC707 (86)-(95)
14.318MHz

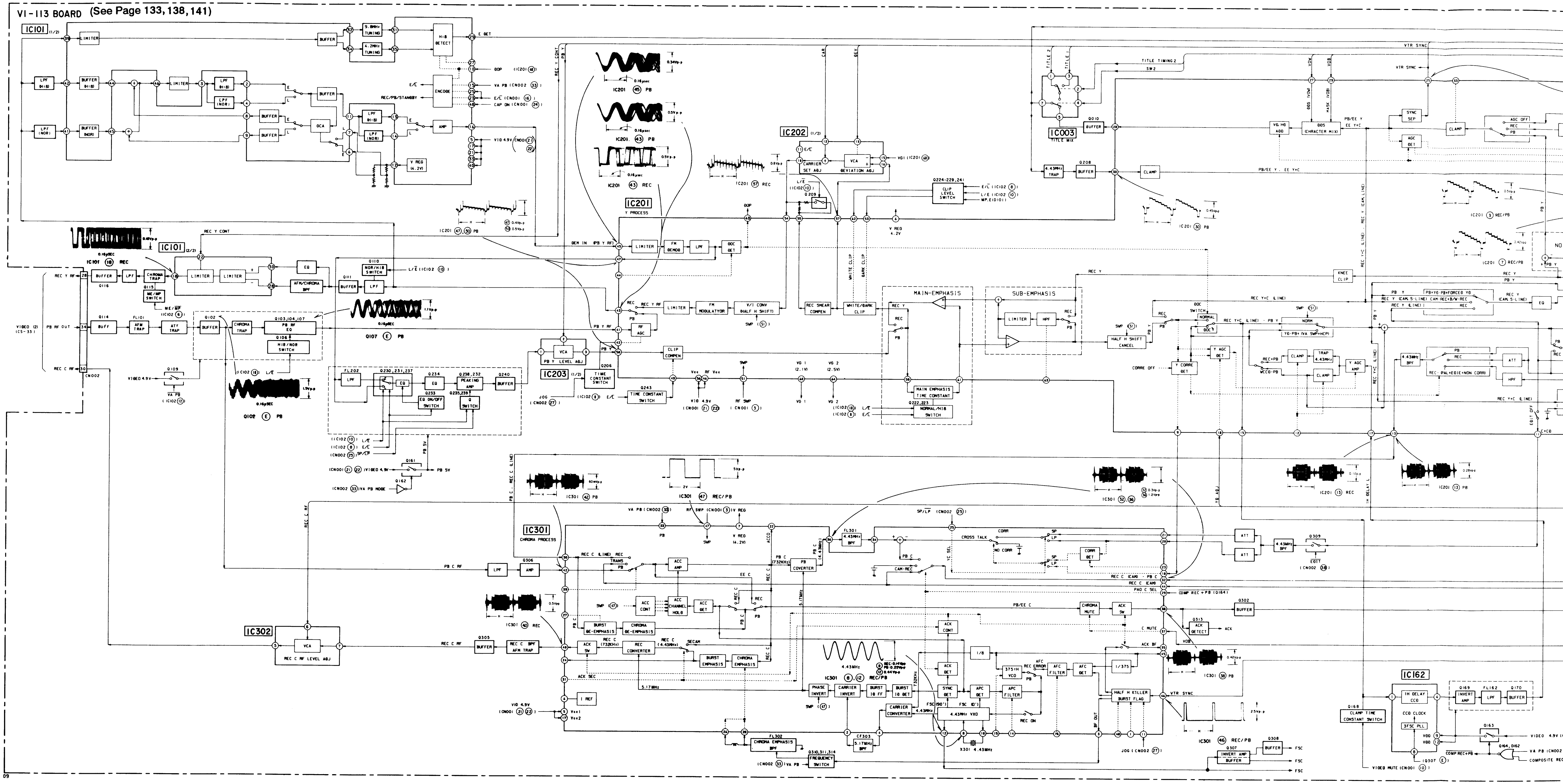
3-4. CAMERA MICROPROCESSOR PIN FUNCTION (IC709 ON CS-33 BOARD: CXP80624-419Q)

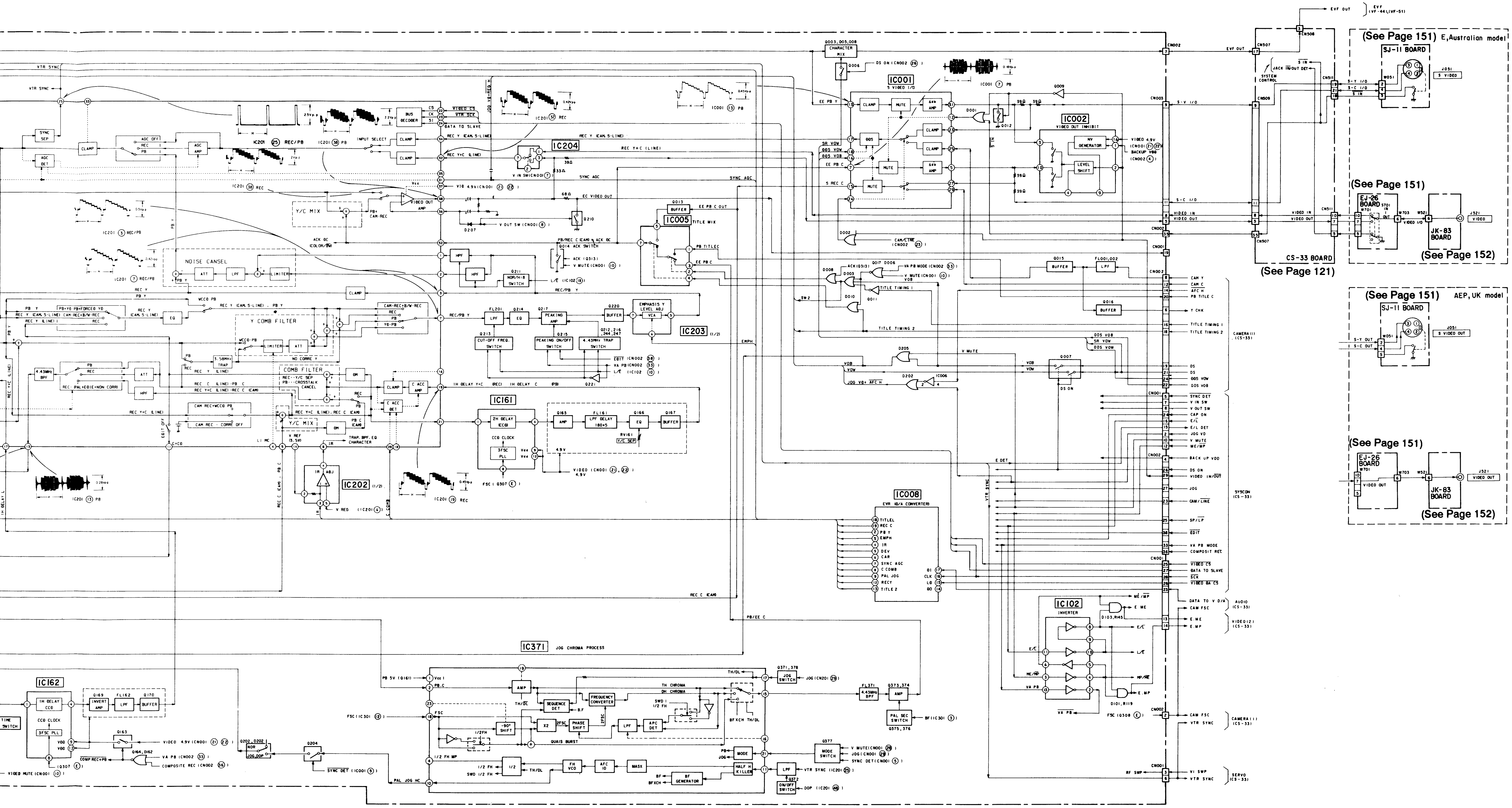
Pin No.	Signal	I/O	Function
1	EPROM DI	O	Not used.
2	$\overline{\text{EPROM SCK}}$	O	
3	ZOOM M REV	O	Zoom motor control signal. Normally “H”. 20 msec period PWM signal when rotating to WIDE.
4	ZOOM M FWD	O	Zoom motor control signal. Normally “H”. 20 msec period PWM signal when rotating to TELE.
5	PB1		Not used.
6	PB0		
7	RT07/D7		
8	RT06/D6		
9	RT05/D5		
10	$\overline{\text{CORE RESET}}$	O	Camera core (IC707 on CS-33 board) reset signal. Normally “H”. “L” when reset.
11	PDR RESET	O	Focus predriver (IC706 on CS-33 board) reset signal. Normally “H”. “L” when reset.
12	TG STBY1		Not used.
13	TG STBY2		
14	$\overline{\text{OPD RESET}}$	O	OPD (IC705 on CS-33 board) reset signal. “H”: camera mode. “L”: VTR mode.
15	PJ7/FSEL31		Not used.
16	PJ6/FSEL30		
17	PJ5/FSEL21		
18	PJ4/FSEL20		
19	PJ3/FSEL11		
20	PJ2/FSEL10		
21	PJ1/FSEL01		
22	PJ0/FSEL00		
23	EPROM DO	O	
24	$\overline{\text{EPROM BUSY}}$	I	BUSY signal from EEPROM. Normally “H”. “L” pulse when data reading/writing.
25	FOC NEAR		Not used.
26	FOC FAR		
27	PD3/C	I	Connected to GND.
28	TA/$\overline{\text{CA}}$	I	
29	WIDE END		Fixed to +5V.
30	FOC END FAR	I	Focus end FAR sensor input. Normally “L”.
31	$\overline{\text{CAM ON}}$	O	Power supply control signal. Normally “L”.
32	PH6		Not used.
33	PH5		
34	PH4		
35	PH3		
36	PH2		
37	PH1		
38	FOC END LED	O	Focus end sensor LED control signal. Normally “H” (4.4V).
39	MP		Connected to GND.
40	$\overline{\text{CAM RESET}}$	I	Reset signal input. Normally “H”. “L” when reset.
41	VSS		GND
42	XTAL	O	12 MHz clock oscillation circuit
43	EXTAL	I	
44	$\overline{\text{CS CAM}}$	I	Chip select signal from mode control microprocessor.
45	VTR SO	I	Serial data input from mode control microprocessor.
46	VTR SI	O	Serial data output from mode control microprocessor.
47	$\overline{\text{VTR SCK}}$	I	Serial data transfer clock
48	PF7/AN11		Not used.
49	PF6/AN10		
50	PF5/AN9		
51	PF4		Not used.
52	AVSS		GND
53	AVREF		Analog input port reference voltage (5V)
54	AVDD		Analog input port voltage (5V)
55	PF3/AN7		Connected to GND.
56	V TEMP	I	Temperature voltage input. Connected to Q701 collector. 1.8 to 3.0 Vdc.
57	MAN FOCUS (2)	I	Manual focus input. 0 to 5 Vdc.
58	MAN FOCUS (1)	I	Manual focus input. 0 to 5 Vdc.
59	ZOOM SW	I	Zoom key input. 4.3V: F. TELE, 3.1V: TELE, 0.7V: F. WIDE, 1.9V: WIDE, 2.5V: no input.
60	ZOOM POS X4	I	Zoom position voltage. approx. 0V (WIDE end) to approx. 3V (TELE end).
61	HALL A/D	I	Hall voltage. approx. 1V (iris open) to approx. 3V (iris close).
62	ZOOM POSITION A/D	I	Zoom position voltage. approx. 0.2V (WIDE end) to approx. 2.4V (TELE end).
63	PG7/EX11		Connected to 5V.
64	PG6/EX10		
65	PG5/SYNC1		
66	VTR SYNC		
67	PB CTL		
68	DPG		
69	FOC FG		
70	AF BUSY	I	AF busy signal
71	PE7/DAB1		Not used.
72	PE6/DAB0		
73	PE5/DAA1		
74	PE4/DAA0		
75	IRIS PWM	O	Iris control signal. 25.5 µsec period PWM signal
76	ZP PWM	O	Zoom position detection voltage output. 25.5 µsec period PWM signal
77	AJST	I	Adjustment timing pulse input. Normally “H”.
78	VD	I	VD signal input from sync generator
79	CAM SI	I	Serial data input
80	CAM SO	O	Serial data output
81	$\overline{\text{CAM SCK}}$	O	Serial data transfer clock
82	$\overline{\text{CS CAM}}$		Not used.
83	PI/TO		
84	PI/PWM		
85	PI/PO		
86	PI O		Connected to +5V.
87	PKO		
88	GND		GND
89	VDD		+5V power supply
90	VPP		
91	PA7/A15		Not used.
92	$\overline{\text{CS PDR}}$	O	Chip select signal to focus predriver (IC706 on CS-33 board)
93	$\overline{\text{CS CAM D/A}}$	O	Chip select signal to camera EVR (IC702 on CS-33 board)
94	$\overline{\text{CS ROM}}$	O	Chip select signal to EEPROM (IC712 on CS-33 board)
95	$\overline{\text{CS OPD}}$	O	Chip select signal to OPD (IC705 on CS-33 board)
96	$\overline{\text{NTSC}}$	O	NTSC: “L”, PAL: “H”
97	$\overline{\text{CS CORE}}$	O	Chip select signal to camera core (IC707 on CS-33 board)
98	$\overline{\text{CS TG}}$	O	Select signal to timing generator (IC801 on CS-33 board)
99	J STB		Not used.
100	PB6		

3-5. CAMERA (2) BLOCK DIAGRAM

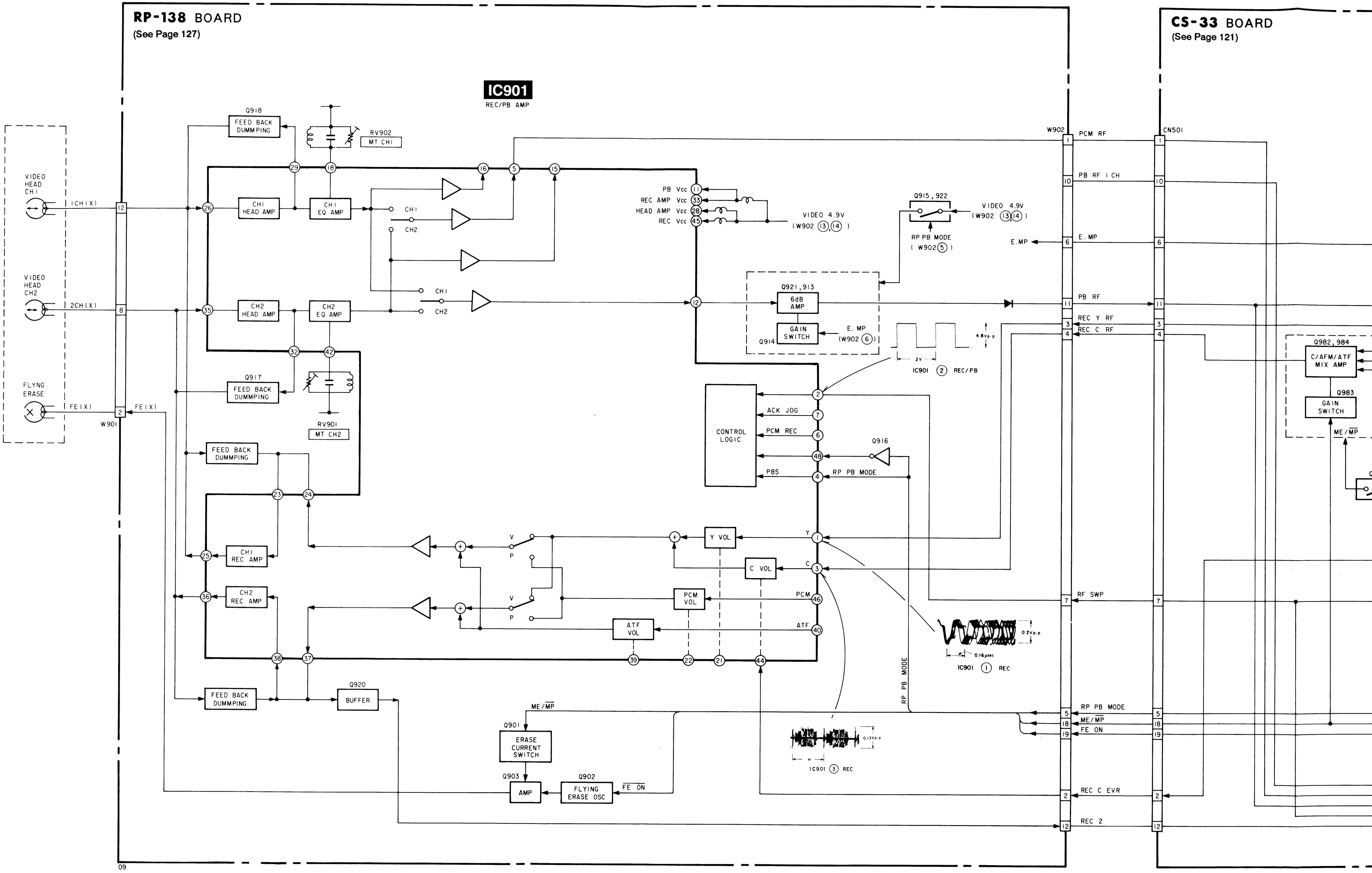

CS-33 BOARD
(See Page 110)
(See Page 109)
LENS BLOCK
CAMERA (1)
IRIS PWM (IC709 (75))
REF 2V (IC702 (12))
HALL OUT (IC709 (61))
HALL OFS (IC702 (8))
HALL GAIN (IC702 (7))
ZOOM FWD (IC709 (4))
ZOOM REV (IC709 (3))
ZOOM SPD (IC702 (6))
AV REF (IC709 (53))
ZOOM POS (IC709 (62))
ZOOM POS X4 (IC702 (60))
ZOOM PWM (IC709 (76))
FOC IN 4 (IC706 (15))
FOC IN 2 (IC706 (13))
FOC IN 3 (IC706 (14))
FOC IN 1 (IC706 (12))
V TEMP (IC709 (56))
FOC END FAR (IC709 (30))
FOC END LED (IC709 (38))
LPF
IC852 (1/4)
IC851 (1/2)
IRIS DRIVE
IC852 (1/4)
HALL BIAS CONTROL
IC851 (1/2)
HALL AMP
IC852 (1/4)
HALL GAIN CONTROL
Q851
IC854
ZOOM MOTOR DRIVE
IN 1
IN 2
OUT 1
OUT 2
Vcc
V CONT
Vss
MT 5V (Q509)
Q853
DRIVE CURRENT LIMITER
IC852 (1/4)
ZOOM REF
IC855 (1/2)
ZOOM POS X4
LPF
IC855 (1/2)
LPF
IC853
FOCUS MOTOR DRIVE
IN 1
IN 2
EN 1
EN 2
A
B
B̄
Ā
Vcc
MT 5V (Q509)
Q701
TEMP SENSOR
CN851
DRIVE (+)
DRIVE (-)
CONT (+)
CONT (-)
BIAS (+)
HALL (+)
HALL (-)
BIAS (-)
ZOOM W
ZOOM T
ZP REF
ZOOM ENC
GND
FOCUS MA
FOCUS MB
FOCUS M̄B̄
FOCUS M̄Ā
SENS Vcc
SENS
LED
M904
IRIS MOTOR
M
H
M906
ZOOM MOTOR
M
ZOOM POSITION
M905
FOCUS MOTOR
M
FOCUS END SENSOR

3-6. VIDEO (1) BLOCK DIAGRAM

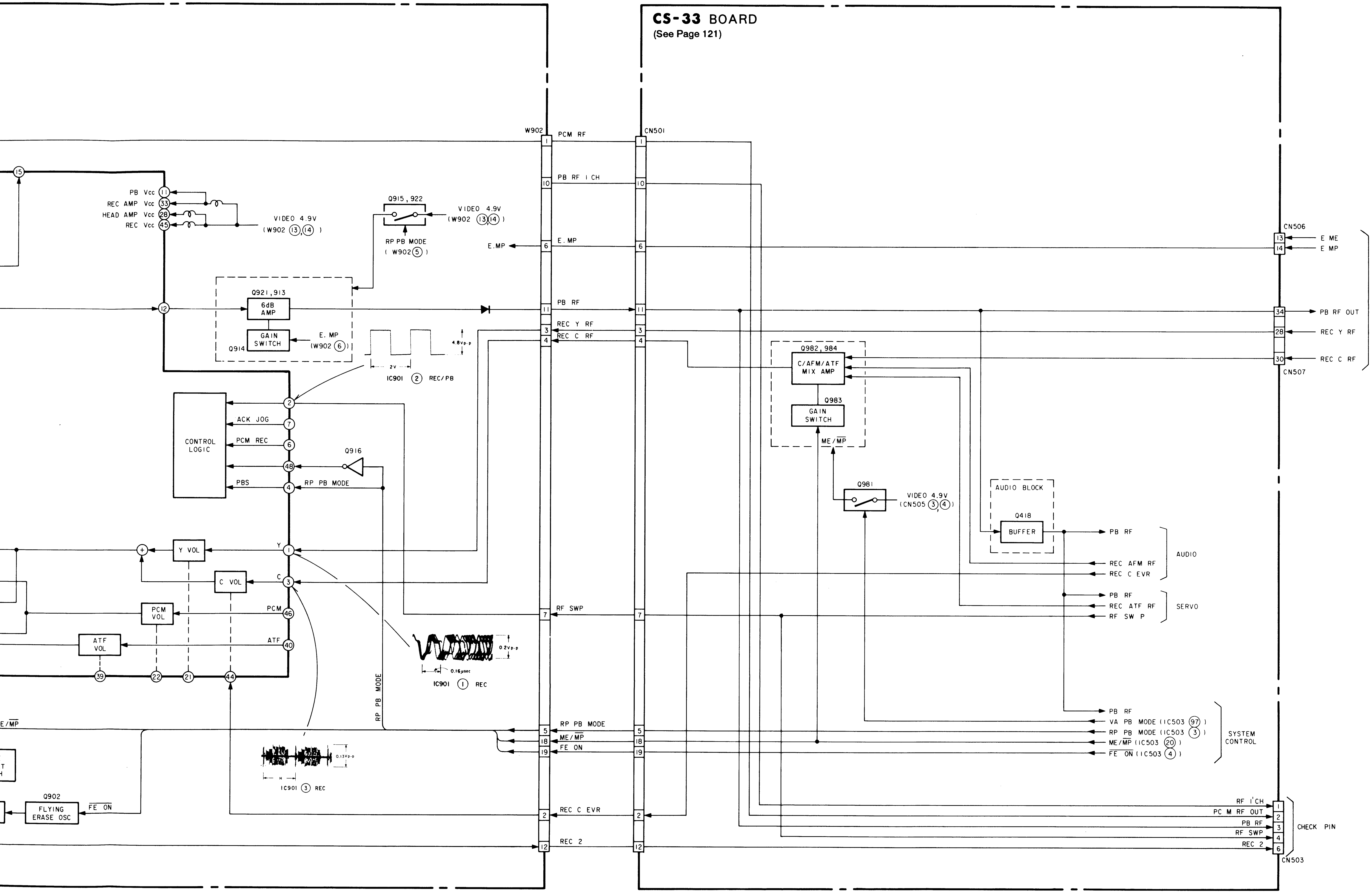

VI-113 BOARD (See Page 133, 138, 141)
IC101 (1/2)
IC101 (2/2)
LIMITER
BUFFER
9.8MHz TUNING
4.2MHz TUNING
Hi8 DETECT
E DET
ENCODE
LPF (Hi8)
LPF (NOR)
BUFFER (Hi8)
BUFFER (NOR)
DCA
AMP
V REG (4.2V)
DOP
VA PB (CN002 33)
E/E (CN001 16)
CAP ON (CN001 24)
REC/PB/STANDBY
VIO 4.9V (CN001 21 22)
IC201 45 PB
IC201 43 PB
IC201 43 REC
IC201 57 REC
IC201 47, 50 PB
IC201 Y PROCESS
IC202 (1/2)
CARRIER SET ADJ
VCA DEVIATION ADJ
VG1 (IC201 48)
Q209
Q224-229,241 CLIP LEVEL SWITCH
E/E (IC102 8)
L/E (IC102 10)
MP.E (D101)
V REG 4.2V
REC Y CONT
DEM IN (PB Y RF)
LIMITER
FM DEMOD
LPF
DOC DET
REC Y RF
FM MODULATOR
V/I CONV (HALF H SHIFT)
SWP (CN001 3)
RF AGC
CLIP COMPEN
REC SMEAR COMPEN
WHITE/DARK CLIP
WHITE CLIP
DARK CLIP
MAIN-EMPHASIS
SUB-EMPHASIS
MAIN EMPHASIS TIME CONSTANT
Q222,223 NORMAL/Hi8 SWITCH
HPF
IC101 18 REC
REC Y RF
BUFFER
CHROMA TRAP
Q116
Q115 ME/MP SWITCH
Q110 NOR/Hi8 SWITCH
L/E (IC102 10)
AFM/CHROMA BPF
EQ
Q111
VIDEO (2) (CS-33)
PB RF OUT
REC C RF
CN002
Q114 BUFF
FL101 AFM TRAP
ATF TRAP
Q102 BUFFER
CHROMA TRAP
Q103,104,107 PB RF EQ
Q106 Hi8/NOR SWITCH
Q107 E PB
Q109
VIDEO 4.9V
VA PB (IC102 11)
Q102 E PB
FL202 LPF
Q230,231,237
Q234 EQ
Q238,232 PEAKING AMP
Q240 BUFFER
Q233 EQ ON/OFF SWITCH
Q235,239 Q SWITCH
IC203 (1/2)
PB Y LEVEL ADJ
Q206 TIME CONSTANT SWITCH
Q243 TIME CONSTANT SWITCH
JOG (CN002 27)
Q161
Q162
PB 5V
(CN002 33) VA PB MODE
IC003 TITLE MIX
TITLE TIMING 2
SW 2
VTR SYNC
Q010 BUFFER
Q208 BUFFER
4.43MHz TRAP
CLAMP
PB/EE Y · EE Y+C
VG HD ADD
D05 (CHARACTER MIX)
SYNC SEP
AGC DET
AGC OFF
KNEE CLIP
REC Y+C (LINE)
HALF H SHIFT CANCEL
DOC SWITCH
NORMAL
Y CORRE DET
CORRE OFF
Y AGC DET
TRAP 4.43MHz
Y AGC AMP
4.43MHz BPF
ATT
REC (PAL+EDIE+NON CORR)
IC301 42 PB
IC301 47 REC/PB
IC301 CHROMA PROCESS
VA PB (CN002 33)
SWP (CN001 3)
V REG (4.2V)
FL301 4.43MHz BPF
SP/LP (CN002 25)
CROSS TALK
NO CORR
CORR DET
CAM-REC
PB C RF
LPF
Q306 AMP
REC C (LINE) REC
TRANS
ACC AMP
PB C (732KHz) PB COVERTER
ACC CONT
ACC CHANNEL HOLD
ACC DET
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
IC302
VCA REC C RF LEVEL ADJ
Q305 BUFFER
REC C BPF AFM TRAP
ACK SW
REC C CONVERTER
BURST EMPHASIS
CHROMA EMPHASIS
ACK SEC
I REF
PHASE INVERT
CARRIER INVERT
BURST 1/2 FF
BURST ID DET
CARRIER CONVERTER
SYNC DET
APC DET
APC FILTER
4.43MHz VXO
X301 4.43MHz
ACK CONT
ACK DET
1/8
375fH VCO
AFC FILTER
AFC DET
1/375
HALF H KILLER BURST FLAG
CHROMA MUTE
ACK SW
Q302 BUFFER
Q313 ACK DETECT
FL302 CHROMA EMPHASIS BPF
CF303 5.17MHz BPF
Q310,311,314 FREQUENCY SWITCH
IC301 46 REC/PB
Q307 INVERT AMP BUFFER
Q308 BUFFER
FSC
IC162
1H DELAY CCD
CCD CLOCK
3FSC PLL
Q168 CLAMP TIME CONSTANT SWITCH
Q169 INVERT AMP
FL162 LPF
Q170 BUFFER
Q163
Q164, D162
VIDEO MUTE (CN001 10)
COMPOSITE REC


IC201
IC202
IC203
IC204
IC161
IC162
IC371 JOG CHROMA PROCESS
IC001 S VIDEO I/O
IC002 VIDEO OUT INHIBIT
IC005 TITLE MIX
IC008 EVR (D/A CONVERTER)
IC102 INVERTER
Y/C MIX
NOISE CANSEL
Y COMB FILTER
COMB FILTER
CLAMP
AGC AMP
SYNC SEP
BUS DECODER
VIDEO OUT AMP
EMPHASIS Y LEVEL ADJ
PEAKING AMP
CUT-OFF FREQ. SWITCH
4.43MHz TRAP SWITCH
2H DELAY (CCD)
CCD CLOCK
3FSC PLL
1H DELAY CCD
CHARACTER MIX
NV GENERATOR
LEVEL SHIFT
SEQUENCE DET
FREQUENCY CONVERTER
PHASE SHIFT
APC DET
FH VCO
AFC ID
BF GENERATOR
HALF H KILLER
MODE SWITCH
PAL SEC SWITCH
JOG SWITCH
ON/OFF SWITCH
EVF OUT
EVF (VF-44),(VF-51)
CN002
CN003
CN001
CN507
CN509
CN508
CN511
SYSTEM CONTROL
CS-33 BOARD
(See Page 121)
(See Page 151) E,Australian model
SJ-11 BOARD
W051
J051
S VIDEO
S-Y I/O
S-C I/O
S IN
(See Page 151)
EJ-26 BOARD
S701 IN OUT
W701
W703
W521
VIDEO I/O
JK-83 BOARD
J521
VIDEO
(See Page 152)
(See Page 151) AEP,UK model
SJ-11 BOARD
S-Y OUT
S-C OUT
J051
S VIDEO OUT
(See Page 151)
EJ-26 BOARD
VIDEO OUT
JK-83 BOARD
J521
VIDEO OUT
(See Page 152)
CAMERA(1) (CS-33)
SYSCON (CS-33)
AUDIO (CS-33)
VIDEO(2) (CS-33)
CAMERA(1) (CS-33)
SERVO (CS-33)

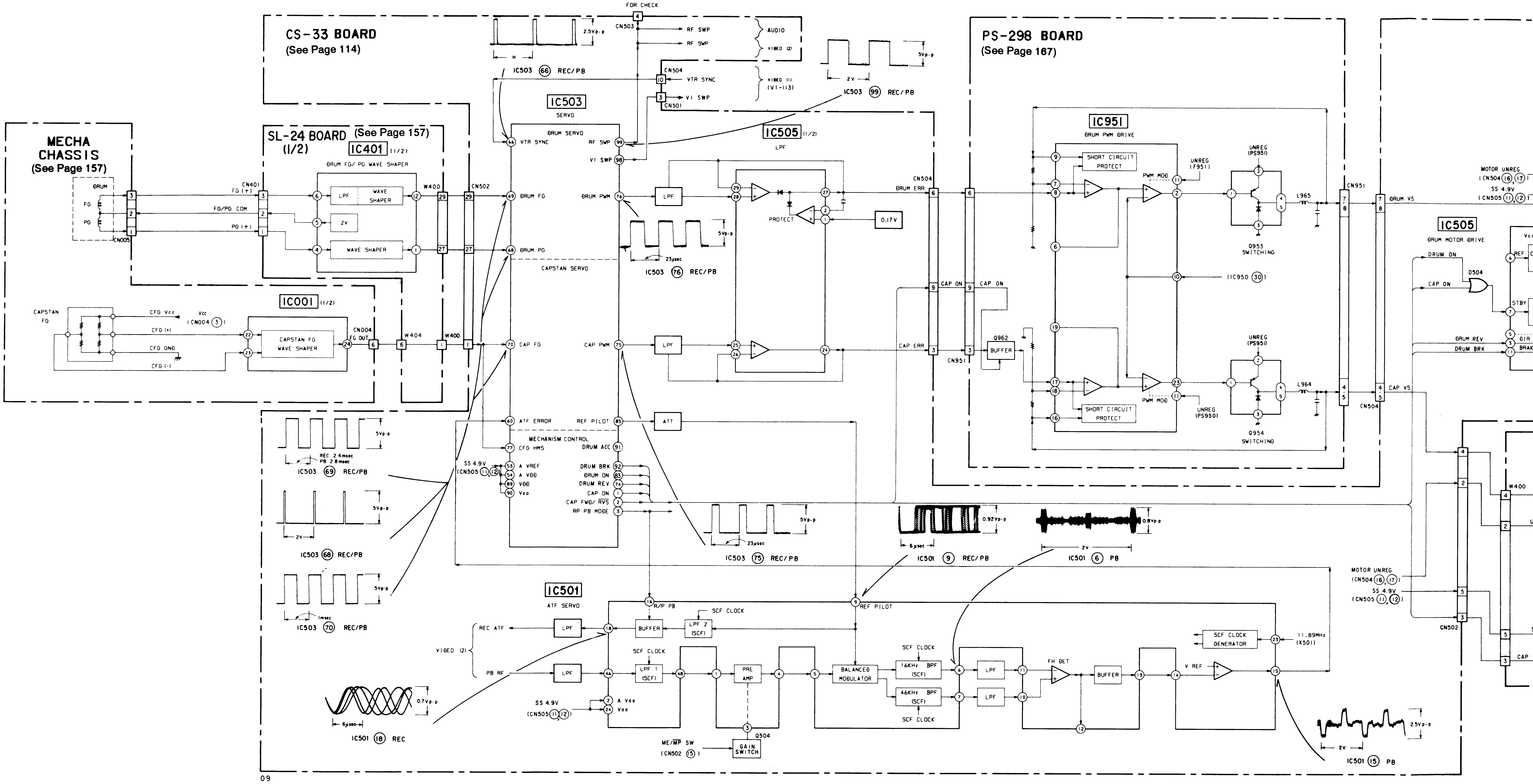
3-7. VIDEO (2) BLOCK DIAGRAM

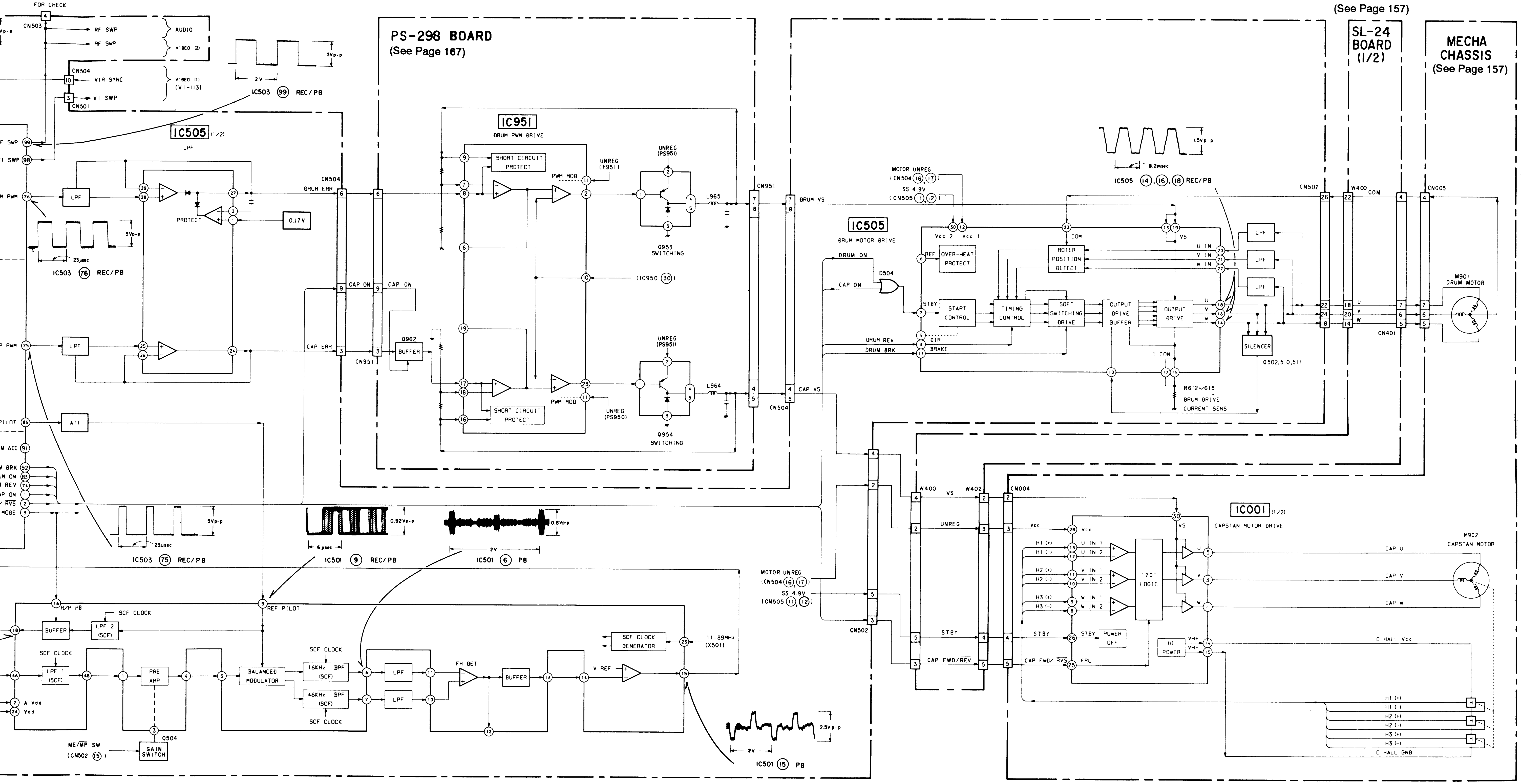


RP-138 BOARD
(See Page 127)
CS-33 BOARD
(See Page 121)
IC901
REC/PB AMP
VIDEO HEAD CH1
VIDEO HEAD CH2
FLYNG ERASE
1CH(X)
2CH(X)
FE(X)
W901
Q918
FEED BACK DUMMPING
RV902
MT CH1
CH1 HEAD AMP
CH1 EQ AMP
CH2 HEAD AMP
CH2 EQ AMP
Q917
FEED BACK DUMMPING
RV901
MT CH2
FEED BACK DUMMPING
CH1 REC AMP
CH2 REC AMP
FEED BACK DUMMPING
Q920
BUFFER
CH1
CH2
PB Vcc
REC AMP Vcc
HEAD AMP Vcc
REC Vcc
VIDEO 4.9V
(W902 ⑬,⑭)
Q915, 922
RP PB MODE
(W902 ⑤)
Q921, 913
6dB AMP
GAIN SWITCH
Q914
E. MP
(W902 ⑥)
4.8Vp-p
2V
IC901 ② REC/PB
CONTROL LOGIC
ACK JOG
PCM REC
PBS
RP PB MODE
Q916
Y VOL
C VOL
PCM VOL
ATF VOL
V
P
Y
C
PCM
ATF
0.2Vp-p
0.16μsec
IC901 ① REC
0.13Vp-p
H
IC901 ③ REC
RP PB MODE
ME/MP
Q901
ERASE CURRENT SWITCH
Q903
AMP
Q902
FLYING ERASE OSC
FE ON
W902
PCM RF
PB RF 1 CH
E. MP
PB RF
REC Y RF
REC C RF
RF SWP
RP PB MODE
ME/MP
FE ON
REC C EVR
REC 2
CN501
Q982, 984
C/AFM/ATF MIX AMP
Q983
GAIN SWITCH
ME/MP
09

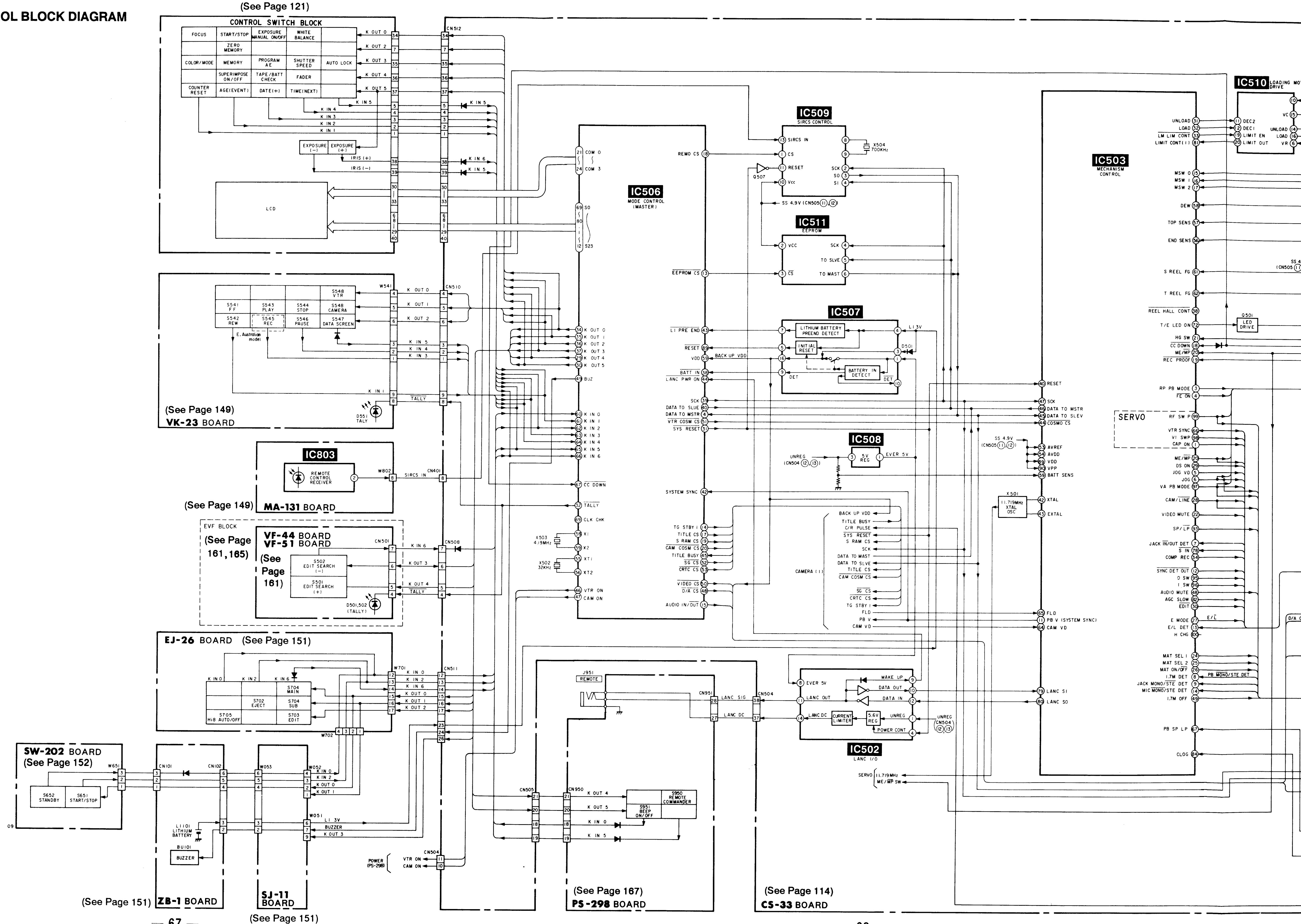

CS-33 BOARD
(See Page 121)
W902
CN501
PCM RF
PB RF I CH
E.MP
PB RF
REC Y RF
REC C RF
RF SWP
RP PB MODE
ME/MP
FE ON
REC C EVR
REC 2
PB Vcc
REC AMP Vcc
HEAD AMP Vcc
REC Vcc
VIDEO 4.9V
(W902 ⑬,⑭)
Q915, 922
RP PB MODE
(W902⑤)
Q921, 913
6dB AMP
GAIN SWITCH
Q914
E. MP
(W902 ⑥)
4.8Vp-p
2V
IC901 ② REC/PB
CONTROL LOGIC
ACK JOG
PCM REC
PBS
Q916
Y VOL
C VOL
PCM VOL
ATF VOL
Y
C
PCM
ATF
0.2Vp-p
0.16μsec
IC901 ① REC
0.13Vp-p
H
IC901 ③ REC
E/MP
Q902
FLYING ERASE OSC
FE ON
Q982, 984
C/AFM/ATF MIX AMP
Q983
GAIN SWITCH
ME/MP
Q981
VIDEO 4.9V
(CN505 ③,④)
AUDIO BLOCK
Q418
BUFFER
CN506
E ME
E MP
PB RF OUT
REC Y RF
REC C RF
CN507
VIDEO(1)
PB RF
REC AFM RF
REC C EVR
AUDIO
PB RF
REC ATF RF
RF SW P
SERVO
PB RF
VA PB MODE (IC503 97)
RP PB MODE (IC503 ③)
ME/MP (IC503 ⑳)
FE ON (IC503 ④)
SYSTEM CONTROL
RF I'CH
PC M RF OUT
PB RF
RF SWP
REC 2
CHECK PIN
CN503

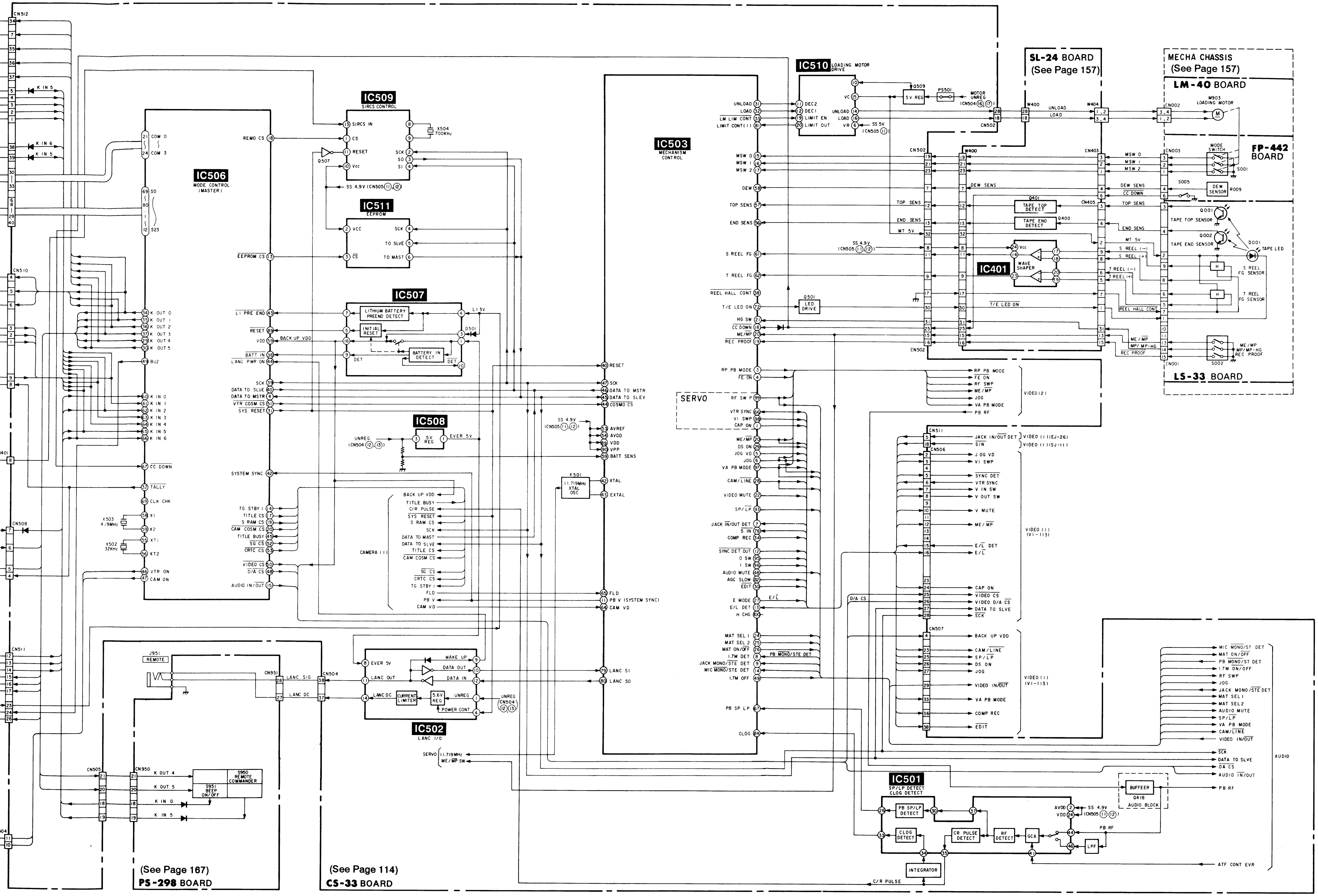
3-8. SERVO BLOCK DIAGRAM


FOR CHECK
CN503
RF SWP
RF SWP
AUDIO
VIDEO (2)
CN504
VTR SYNC
VIDEO (1) (V1-113)
V1 SWP
CN501
CS-33 BOARD
(See Page 114)
2.5Vp-p
H
IC503 66 REC/PB
2V
5Vp-p
IC503 99 REC/PB
IC503
SERVO
DRUM SERVO
VTR SYNC
RF SWP
V1 SWP
DRUM FG
DRUM PWM
DRUM PG
CAPSTAN SERVO
CAP FG
CAP PWM
ATF ERROR
REF PILOT
MECHANISM CONTROL
CFG HMS
DRUM ACC
A VREF
A VDD
VDD
Vpp
DRUM BRK
DRUM ON
DRUM REV
CAP ON
CAP FWD/RVS
RP PB MODE
SS 4.9V (CN505 11 12)
MECHA CHASSIS
(See Page 157)
DRUM
FG
PG
CN005
SL-24 BOARD (See Page 157)
(1/2)
IC401 (1/2)
DRUM FG/PG WAVE SHAPER
CN401
FG (+)
FG/PG COM
PG (+)
LPF
WAVE SHAPER
2V
WAVE SHAPER
W400
CN502
CAPSTAN FG
CFG Vcc
Vcc (CN004 3)
CFG (+)
CFG GND
CFG (-)
IC001 (1/2)
CAPSTAN FG WAVE SHAPER
CN004
FG OUT
W404
W400
IC505 (1/2)
LPF
PROTECT
0.17V
5Vp-p
23μsec
IC503 76 REC/PB
ATT
CN504
DRUM ERR
CAP ON
CAP ERR
CN951
PS-298 BOARD
(See Page 167)
IC951
DRUM PWM DRIVE
SHORT CIRCUIT PROTECT
PWM MOD
UNREG (F951)
UNREG (PS951)
Q953 SWITCHING
L965
(IC950 30)
Q962
BUFFER
UNREG (PS951)
PWM MOD
UNREG (PS950)
SHORT CIRCUIT PROTECT
Q954 SWITCHING
L964
CN951
DRUM VS
CAP VS
CN504
MOTOR UNREG (CN504 16, 17)
SS 4.9V (CN505 11 12)
IC505
DRUM MOTOR DRIVE
DRUM ON
CAP ON
D504
STBY
DRUM REV
DRUM BRK
DIR
BRAK
REF
Vcc
5Vp-p
REC 2.4msec
PB 2.8msec
IC503 69 REC/PB
5Vp-p
2V
IC503 68 REC/PB
5Vp-p
1msec
IC503 70 REC/PB
5Vp-p
23μsec
IC503 75 REC/PB
0.92Vp-p
6μsec
IC501 9 REC/PB
0.8Vp-p
2V
IC501 6 PB
MOTOR UNREG (CN504 16, 17)
SS 4.9V (CN505 11 12)
CN502
W400
CAP
IC501
ATF SERVO
R/P PB
SCF CLOCK
REF PILOT
REC ATF
VIDEO (2)
PB RF
LPF
BUFFER
LPF 2 (SCF)
SCF CLOCK
LPF 1 (SCF)
PRE AMP
BALANCED MODULATOR
SCF CLOCK
16KHz BPF (SCF)
46KHz BPF (SCF)
SCF CLOCK
LPF
LPF
FH DET
BUFFER
V REF
SCF CLOCK GENERATOR
11.89MHz (X501)
SS 4.9V (CN505 11 12)
A Vdd
Vdd
Q504
GAIN SWITCH
ME/MP SW (CN502 15)
0.7Vp-p
6μsec
IC501 18 REC
2.5Vp-p
2V
IC501 15 PB
09


FOR CHECK
CN503
RF SWP
RF SWP
AUDIO
VIDEO (2)
CN504
VTR SYNC
VIDEO (1) (VI-113)
VI SWP
CN501
2V
5Vp-p
IC503 (99) REC/PB
IC505 (1/2)
LPF
PROTECT
0.17V
CN504
DRUM ERR
5Vp-p
23μsec
IC503 (76) REC/PB
CAP ON
CAP ERR
ATT
5Vp-p
23μsec
IC503 (75) REC/PB
0.92Vp-p
6μsec
IC501 (9) REC/PB
0.8Vp-p
2V
IC501 (6) PB
PS-298 BOARD
(See Page 167)
IC951
DRUM PWM DRIVE
SHORT CIRCUIT PROTECT
PWM MOD
UNREG (F951)
UNREG (PS951)
L965
Q953 SWITCHING
(IC950 (30))
CAP ON
Q962
BUFFER
CN951
UNREG (PS951)
L964
PWM MOD
UNREG (PS950)
Q954 SWITCHING
CN951
DRUM VS
CAP VS
CN504
IC505
DRUM MOTOR DRIVE
MOTOR UNREG (CN504 (16),(17))
SS 4.9V (CN505 (11),(12))
1.5Vp-p
8.2msec
IC505 (14),(16),(18) REC/PB
Vcc 2
Vcc 1
COM
VS
REF
OVER-HEAT PROTECT
ROTER POSITION DETECT
U IN
V IN
W IN
LPF
LPF
LPF
DRUM ON
CAP ON
D504
STBY
START CONTROL
TIMING CONTROL
SOFT SWITCHING DRIVE
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
U
V
W
DRUM REV
DRUM BRK
DIR
BRAKE
I COM
SILENCER
Q502,510,511
R612~615
DRUM DRIVE CURRENT SENS
CN502
(See Page 157)
SL-24 BOARD (1/2)
W400
COM
CN401
MECHA CHASSIS
(See Page 157)
CN005
M901
DRUM MOTOR
R/P PB
SCF CLOCK
BUFFER
LPF 2 (SCF)
REF PILOT
SCF CLOCK
LPF 1 (SCF)
PRE AMP
A Vdd
Vdd
Q504
ME/MP SW (CN502 (15))
GAIN SWITCH
BALANCED MODULATOR
SCF CLOCK
16KHz BPF (SCF)
46KHz BPF (SCF)
SCF CLOCK
LPF
LPF
FH DET
BUFFER
V REF
SCF CLOCK GENERATOR
11.89MHz (X501)
2.5Vp-p
2V
IC501 (15) PB
MOTOR UNREG (CN504 (16),(17))
SS 4.9V (CN505 (11),(12))
CN502
W400
VS
W402
UNREG
STBY
CAP FWD/REV
CN004
Vcc
IC001 (1/2)
CAPSTAN MOTOR DRIVE
VS
H1 (+)
H1 (-)
H2 (+)
H2 (-)
H3 (+)
H3 (-)
U IN 1
U IN 2
V IN 1
V IN 2
W IN 1
W IN 2
120° LOGIC
STBY
POWER OFF
HE POWER
VH+
VH-
CAP FWD/RVS
FRC
M902
CAPSTAN MOTOR
CAP U
CAP V
CAP W
C HALL Vcc
H1 (+)
H1 (-)
H2 (+)
H2 (-)
H3 (+)
H3 (-)
C HALL GND

3-9. SYSTEM CONTROL BLOCK DIAGRAM


(See Page 121)
CONTROL SWITCH BLOCK
FOCUS
START/STOP
EXPOSURE MANUAL ON/OFF
WHITE BALANCE
ZERO MEMORY
COLOR/MODE
MEMORY
PROGRAM AE
SHUTTER SPEED
AUTO LOCK
SUPERIMPOSE ON/OFF
TAPE/BATT CHECK
FADER
COUNTER RESET
AGE(EVENT)
DATE(+)
TIME(NEXT)
K OUT 0
K OUT 2
K OUT 3
K OUT 4
K OUT 5
K IN 5
K IN 4
K IN 3
K IN 2
K IN 1
EXPOSURE (−)
EXPOSURE (+)
IRIS (+)
IRIS (−)
K IN 6
K IN 5
LCD
CN512
VK-23 BOARD
(See Page 149)
W541
CN510
S541 FF
S543 PLAY
S544 STOP
S548 VTR
S548 CAMERA
S542 REW
S545 REC
S546 PAUSE
S547 DATA SCREEN
E. Australian model
K OUT 0
K OUT 1
K OUT 2
K IN 5
K IN 4
K IN 3
K IN 1
TALLY
D551 TALLY
IC803
REMOTE CONTROL RECEIVER
W802
SIRCS IN
CN401
(See Page 149)
MA-131 BOARD
EVF BLOCK
VF-44 BOARD
VF-51 BOARD
(See Page 161,165)
(See Page 161)
CN501
CN508
S502 EDIT SEARCH (−)
S501 EDIT SEARCH (+)
K IN 6
K OUT 3
K OUT 4
TALLY
D501,502 (TALLY)
EJ-26 BOARD (See Page 151)
W701
CN511
K IN 0
K IN 2
K IN 6
S704 MAIN
S702 EJECT
S704 SUB
S705 Hi8 AUTO/OFF
S703 EDIT
K IN 0
K IN 2
K IN 6
K OUT 0
K OUT 1
K OUT 2
W702
SW-202 BOARD
(See Page 152)
W651
S652 STANDBY
S651 START/STOP
CN101
CN102
L1101 LITHIUM BATTERY
BU101
BUZZER
(See Page 151)
ZB-1 BOARD
W053
W052
K IN 0
K IN 2
K OUT 0
K OUT 1
W051
LI 3V
BUZZER
K OUT 3
SJ-11 BOARD
(See Page 151)
POWER (PS-298)
VTR ON
CAM ON
CN504
IC506
MODE CONTROL (MASTER)
COM 0
COM 3
S0
S23
REMO CS
EEPROM CS
LI PRE END
RESET
VDD
BACK UP VDD
BATT IN
LANC PWR ON
SCK
DATA TO SLVE
DATA TO MSTR
VTR COSM CS
SYS RESET
K OUT 0
K OUT 1
K OUT 2
K OUT 3
K OUT 4
K OUT 5
BUZ
K IN 0
K IN 1
K IN 2
K IN 3
K IN 4
K IN 5
K IN 6
CC DOWN
TALLY
CLK CHK
X503 4.19MHz
X1
X2
X502 32KHz
XT1
XT2
VTR ON
CAM ON
SYSTEM SYNC
TG STBY 1
TITLE CS
S RAM CS
CAM COSM CS
TITLE BUSY
SG CS
CRTC CS
VIDEO CS
D/A CS
AUDIO IN/OUT
IC509
SIRCS CONTROL
SIRCS IN
CS
RESET
Vcc
SCK
SO
SI
X504 700KHz
Q507
SS 4.9V (CN505 ⑪,⑫)
IC511
EEPROM
VCC
SCK
TO SLVE
TO MAST
CS
IC507
LITHIUM BATTERY PREEND DETECT
INITIAL RESET
BATTERY IN DETECT
DET
LI 3V
D501
IC508
5V REG
UNREG (CN504 ⑫,⑬)
EVER 5V
CAMERA (1)
BACK UP VDD
TITLE BUSY
C/R PULSE
SYS RESET
S RAM CS
SCK
DATA TO MAST
DATA TO SLVE
CAM COSM CS
SG CS
CRTC CS
TITLE CS
TG STBY 1
FLD
PB V
CAM VD
IC502
LANC I/O
EVER 5V
LANC OUT
LANC DC
WAKE UP
DATA OUT
DATA IN
CURRENT LIMITER
5.6V REG
UNREG
POWER CONT
UNREG (CN504 ⑫⑬)
J951 REMOTE
CN951
LANC SIG
LANC DC
CN504
CN505
CN950
K OUT 4
K OUT 5
K IN 0
K IN 5
S950 REMOTE COMMANDER
S951 BEEP ON/OFF
(See Page 167)
PS-298 BOARD
(See Page 114)
CS-33 BOARD
IC503
MECHANISM CONTROL
RESET
SCK
DATA TO MSTR
DATA TO SLEV
COSMO CS
SS 4.9V (CN505 ⑪,⑫)
AVREF
AVDD
VDD
VPP
BATT SENS
X501 11.719MHz XTAL OSC
XTAL
EXTAL
FLD
PB V (SYSTEM SYNC)
CAM VD
LANC SI
LANC SO
SERVO 11.719MHz
ME/MP SW
IC510
LOADING MO DRIVE
UNLOAD
LOAD
LM LIM CONT
LIMIT CONT(1)
DEC2
DEC1
LIMIT EN
LIMIT OUT
VC
UNLOAD
LOAD
VR
MSW 0
MSW 1
MSW 2
DEW
TOP SENS
END SENS
SS 4
(CN505 ⑪
S REEL FG
T REEL FG
REEL HALL CONT
T/E LED ON
Q501 LED DRIVE
HG SW
CC DOWN
ME/MP
REC PROOF
RP PB MODE
FE ON
SERVO
RF SW P
VTR SYNC
V1 SWP
CAP ON
ME/MP
DS ON
JOG VD
JOG
VA PB MODE
CAM/LINE
VIDEO MUTE
SP/LP
JACK IN/OUT DET
S IN
COMP REC
SYNC DET OUT
0 SW
1 SW
AUDIO MUTE
AGC SLOW
EDIT
E MODE
E/L DET
H CHG
E/L
D/A C
MAT SEL 1
MAT SEL 2
MAT ON/OFF
1.7M DET
JACK MONO/STE DET
MIC MONO/STE DET
1.7M OFF
PB MONO/STE DET
PB SP LP
CLOG
09


IC506
MODE CONTROL (MASTER)
IC509
SIRCS CONTROL
IC511
EEPROM
IC507
LITHIUM BATTERY PREEND DETECT
INITIAL RESET
BATTERY IN DETECT
IC508
5V REG
EVER 5V
IC502
LANC I/O
CURRENT LIMITER
5.6V REG
IC503
MECHANISM CONTROL
IC510
LOADING MOTOR DRIVE
IC401
WAVE SHAPER
IC501
SP/LP DETECT CLOG DETECT
PB SP/LP DETECT
CLOG DETECT
CR PULSE DETECT
RF DETECT
GCA
LPF
INTEGRATOR
BUFFEER
Q418
AUDIO BLOCK
X501 11.719MHz XTAL OSC
X503 4.19MHz
X502 32KHz
X504 700KHz
SERVO
CAMERA (I)
VIDEO (2)
VIDEO (I)
AUDIO
SL-24 BOARD
(See Page 157)
MECHA CHASSIS
(See Page 157)
LM-40 BOARD
FP-442 BOARD
LS-33 BOARD
M903 LOADING MOTOR
MODE SWITCH
S001
S005
DEW SENSOR
R009
Q001 TAPE TOP SENSOR
Q002 TAPE END SENSOR
D001 TAPE LED
S REEL FG SENSOR
T REEL FG SENSOR
S002
ME/MP
MP/MP-HG
REC PROOF
Q401 TAPE TOP DETECT
Q400 TAPE END DETECT
Q501 LED DRIVE
Q507
PS501
Q509
J951 REMOTE
S950 REMOTE COMMANDER
S951 BEEP ON/OFF
K OUT 4
K OUT 5
K IN 0
K IN 5
K IN 6
LANC SIG
LANC DC
(See Page 167)
PS-298 BOARD
(See Page 114)
CS-33 BOARD
C/R PULSE
ATF CONT EVR
PB RF
SERVO 11.719MHz
ME/MP SW
CN512
CN510
CN508
CN511
CN505
CN504
CN950
CN951
CN502
CN506
CN507
CN403
CN405
CN002
CN003
CN001
W400
W404
UNLOAD
LOAD
MSW 0
MSW 1
MSW 2
DEW SENS
CC DOWN
TOP SENS
END SENS
MT 5V
S REEL FG
T REEL FG
REEL HALL CONT
T/E LED ON
RESET
SCK
DATA TO MSTR
DATA TO SLEV
COSMO CS
AVREF
AVDD
VDD
VPP
BATT SENS
XTAL
EXTAL
FLD
PB V (SYSTEM SYNC)
CAM VD
LANC SI
LANC SO
RP PB MODE
FE ON
RF SWP
JOG
VA PB MODE
PB RF
JACK IN/OUT DET
S IN
VI SWP
SYNC DET
VTR SYNC
V IN SW
V OUT SW
V MUTE
E/L DET
CAP ON
VIDEO CS
VIDEO D/A CS
DATA TO SLVE
BACK UP VDD
CAM/LINE
SP/LP
DS ON
VIDEO IN/OUT
COMP REC
EDIT
MIC MONO/ST DET
MAT ON/OFF
PB MONO/ST DET
1.7M ON/OFF
JACK MONO/STE DET
MAT SEL 1
MAT SEL 2
AUDIO MUTE
DA CS
AUDIO IN/OUT
SS 4.9V (CN505 ⑪ ⑫)
UNREG (CN504 ⑫ ⑬)
MOTOR UNREG (CN504 ⑯ ⑰)

3-10. MECHANISM CONTROL MICROPROCESSOR PIN FUNCTION (IC503 ON CS-33 BOARD: CXP80624A-016Q)

Pin No.	Port Name	Signal	I/O	Connection	Function
1	11	CAP ON	O	MD	Capstan driver ON/OFF control signal. "H" when capstan ON.
2	PB4/PP012	CAP FWD/$\overline{\text{RVS}}$	O	MD	Capstan rotating direction control signal. "H": FWD, "L": RVS.
3	PB3/PP011	RP PB MODE	O	RP	REC/PB select signal of REC/PB amplifier (IC901 on RP-138 board) and ATF servo IC (IC501 on CS-33 board). "H": PB.
4	PB2/PP010	$\overline{\text{FE ON}}$	O	RP	Flying erase oscillation ON/OFF control signal. "L": oscillation.
5	PB1/PP09	JOG VD	O	VI	False VD signal to be inserted into playback video signal during variable speed playback.
6	PB0/PP08	JOG	O	VI	Variable speed/normal speed playback select signal of video circuit. "H" when variable speed playback.
7	PC7/RT07	JACK $\overline{\text{IN}}$/OUT DET	I	VI	Jack in/out switch input. "L" when input.
8	PC6/RT06	1.7M DET	I	VI	Normal/stereo discrimination input. "H" when AFM stereo tape playback.
9	PC5/RT05	JACK MONO/$\overline{\text{STE}}$ DET	I	VI	AUDIO IN/OUT jack monaural/stereo discrimination input. "H": monaural (No jack inserted in right terminal)
10	PC4/RT04	INT VD	I		Not used.
11	PC3/RT03	SYSTEM SYNC	O	MODE CON	V sync for mode controller.
12	PC2/RT018	$\overline{\text{SYNC DET OUT}}$	O	VI	Sync detect output. "L" when Sync is detected.
13	PC1/RT017	E/$\overline{\text{L}}$ DET	I	VI	Not used.
14	PC0/RT016	MIC $\overline{\text{MONO}}$/ST DET	I	AU	External microphone monaural/stereo discrimination input. "L" when monaural microphone used.
15	PJ7	$\overline{\text{M SW 0}}$	I	MD	Mode switch input.
16	PJ6	$\overline{\text{M SW 1}}$	I	MD	
17	PJ5	$\overline{\text{M SW 2}}$	I	MD	
18	PJ4	$\overline{\text{CC DOWN SW}}$	I	MD	Cassette compartment down switch input. "L": down.
19	PJ3	REC PROOF SW	I	MD	Erasure protection switch input. "L" when REC prohibit.
20	PJ2	ME/$\overline{\text{MP}}$ SW	I	MD	ME/MP switch input. "L": MP, "H": ME.
21	PJ1	HG SW	I	MD	Hi8 MP switch input. "H": Hi8 MP.
22	PJ0	VIDEO MUTE	O	VI	Video output mute signal. "H": mute.
23	PD7		I	VI	Not used.
24	PD6	MAT SEL 1	I	VI	Matrix select signal.
25	PD5	MAT SEL 2	I	VI	
26	PD4	MAT ON/$\overline{\text{OFF}}$	O	VI	Matrix ON/OFF signal. "H" when matrix on (stereo).
27	PD3	E MODE	O	VI	Hi8/Normal mode select signal. "H": Hi8 mode.
28	PD2	CAM/$\overline{\text{LINE}}$	O	VI	Camera input/line input select signal. "H" when camera input.
29	PD1	DS ON	O	VI	Data screen ON/OFF signal. "H": ON.
30	PD0	$\overline{\text{EDIT}}$	O	VI	Video circuit EDIT/NORMAL switch signal. "L": EDIT.
31	PH7	UNLOAD	O	SS	Loading motor control signal. "H" or "H" pulse when unloading.
32	PH6	LOAD	O	SS	Loading motor control signal. "H" or "H" pulse when loading.
33	PH5	$\overline{\text{LM LIM COM}}$	O	SS	Loading motor limiter control signal. Temporary "H" when loading.
34	PH4	COMP REC	O	VI	Video input/S video input select signal. "H": Video input.
35	PH3	DRUM REV	O	SS	Drum rotating control signal . Normally "L".
36	PH2		O		N.C.
37	PH1		O		
38	PH0	$\overline{\text{REEL HALL CONT}}$	O	SS	Not used.
39	MP	MP			Connected to GND.
40	RST	$\overline{\text{RESET}}$	I	MODE CON	Reset signal from mode control microprocessor. "L" when reset.
41	VSS	VSS			GND
42	XTAL	XTAL	I	SS	11.72 MHz clock oscillation circuit.
43	EXTAL	EXTAL	O	SS	
44	CSO	$\overline{\text{MECHACON CS}}$	I	MODE CON	Chip select signal from mode control microprocessor (CS-33 board IC506)
45	S10	DATA TO SLVE	I	MODE CON	Serial data input from mode control microprocessor.
46	S00	DATA TO MSTR	O	MODE CON	Serial data output to mode control microprocessor.
47	SCKO	SCK	I	MODE CON	Serial clock input from mode control microprocessor.
48	PF7/AN11	AUDIO MUTE	O	VI	Audio output mute signal. "H": mute.
49	PF6/AN10	1.7M $\overline{\text{ON}}$/OFF	O	VI	1.7 MHz REC AFM carrier ON/OFF signal. "H": OFF (monaural recording).
50	PF5/AN9	ZOOM POS	I		Not used, connected to GND.
51	PF4/AN8	THERMIST	I		Not used, connected to GND.
52	AVSS	AVSS			Analog port GND.
53	AVREF	AVREF			Analog port reference voltage. Connected to +5V.
54	AVDD	VDD			Analog port power supply (5V).
55	PF3/AN7	N.C.			Connected to GND.
56	PF2/AN6	END SENS	I	SS	Tape end detection signal. Normally "L", "H" pulse: tape end.
57	PF1/AN5	TOP SENS	I	SS	Tape top detection signal. Normally "L", "H" pulse: tape top.
58	PF0/AN4	DEW	I	SS	Dew condensation detection signal. "L" when dew condensation.
59	AN3	BATT SENSE	I	SS	Battery voltage input for battery end detection. 1/2 divided by RB504.
60	AN2	ATF ERROR	I	SS	ATF error, ATF lock error input.
61	AN1	S REEL FG	I	SS	S reel FG signal input.
62	AN0	T REEL FG	I	SS	T reel FG signal input.
63	PG7/EXI1	PG7 (N.C.)			Connected to GND.
64	PG6/EXI0	CAM VD	I	CAM SG	VD signal from camera circuit sync generator. V period pulse.
65	PG5/SYNC1	ODD/EVEN	I	CAM SG	FIELD signal from camera circuit sync generator. 2V period pulse.
66	PG4/SYNC0	COMP SYNC	I	VI	Composite sync signal separated from REC/PB Y signal.
67	PG3/PBCTL	PB SP/$\overline{\text{LP}}$	I	SS	Discriminates PB tape REC mode when CUE/REVIEW/FF and REW. "L": LP.
68	PG2/DPG	DRUM PG	I	SS	Drum PG signal input. For drum phase servo 40 msec period "H" pulse.
69	PG1/DFG	DRUM FG	I	SS	Drum FG signal input. For drum speed servo 3.3 msec period pulse.
70	PG0/CFG	CAP FG	I	MD	Capstan FG signal input. For capstan speed servo. Approx. 1388 Hz when REC/PB (SP).
71	PE7/DAB0	N.C.	O		N.C.
72	PE6/DAB0	T/E LED ON	O	SS	Tape LED ON/OFF signal. 100 msec period "H" pulse when REC/PB.
73	PE5/DAA1	N.C.	O		N.C.
74	PE4/DAA0	N.C.	O		
75	PE3/PWM1	CAP PWM	O	SS	Capstan error signal output 20.15 μsec PWM signal.
76	PE2/PWM0	DRUM PWM	O	SS	Drum error signal output 20.15 μsec PWM signal.
77	PE1/EC/INT2	C FG HMS	I	MD	Capstan FG signal input. For tape counter.
78	PE0/INT0	$\overline{\text{S IN}}$			"L" when plug is inserted in S VIDEO terminal.
79	P17/ST1	LANC IN	I	SS	Control L serial data input.
80	P16/SO1	LANC OUT	O	SS	Control L serial data output.
81	P15/SCK1	LIMIT CONT (1)	I	SS	Loading motor limiter ON detection signal. Normally "H", "L" when limiter ON.
82	P14/INT1	AGC SLOW			Not used.
83	P13/TO	DRUM ON	O	SS	Drum driver ON/OFF control signal. "H" when drum ON.
84	P12/PWM	CLOG	O	SS	Head clog detection signal. "L" when no trouble.
85	P11/PO	REF PILOT	O	SS	ATF servo reference pilot signal. Synchronized when drum rotation to output by selecting four frequencies. f1=101.024 kHz, f2=117.188 kHz, f3=162.760 kHz and f4=146.484 kHz.
86	P10/PO				Connected to +5V.
87	PKO	13/10 SW	I	MD	Connected to GND.

Mode switch input (pins 15–17):

	BL	END	EJECT	USE	LOAD	READY	TURN	REC/PB	FF
$\overline{\text{M SW 0}}$	L	L	L	H	L	H	H	L	L
$\overline{\text{M SW 1}}$	L	H	L	L	L	L	H	H	L
$\overline{\text{M SW 2}}$	L	H	H	H	H	L	L	L	L

Matrix select signal (pins 24–25):

	STEREO	MAIN	SUB
MAT SEL 1	L	L	H
MAT SEL 2	L	H	L

Pin No.	Por
88	VSS
89	VDD
90	N.C.
91	PA7/
92	PA6/
93	PA5/
94	PA4/
95	PA3/
96	PA2/
97	PA1/
98	PA0/
99	PB7/
100	0

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URN	REC/PB	FF
H	L	L
H	H	L
L	L	L

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Pin No.	Port Name	Signal	I/O	Connection	Function
44	CSO	$\overline{\text{MECHACON CS}}$	I	MODE CON	Chip select signal from mode control microprocessor (CS-33 board IC506)
45	S10	DATA TO SLVE	I	MODE CON	Serial data input from mode control microprocessor.
46	S00	DATA TO MSTR	O	MODE CON	Serial data output to mode control microprocessor.
47	SCKO	SCK	I	MODE CON	Serial clock input from mode control microprocessor.
48	PF7/AN11	AUDIO MUTE	O	VI	Audio output mute signal. "H": mute.
49	PF6/AN10	1.7M $\overline{\text{ON}}$/OFF	O	VI	1.7 MHz REC AFM carrier ON/OFF signal. "H": OFF (monaural recording).
50	PF5/AN9	ZOOM POS	I		Not used, connected to GND.
51	PF4/AN8	THERMIST	I		Not used, connected to GND.
52	AVSS	AVSS			Analog port GND.
53	AVREF	AVREF			Analog port reference voltage. Connected to +5V.
54	AVDD	VDD			Analog port power supply (5V).
55	PF3/AN7	N.C.			Connected to GND.
56	PF2/AN6	END SENS	I	SS	Tape end detection signal. Normally "L", "H" pulse: tape end.
57	PF1/AN5	TOP SENS	I	SS	Tape top detection signal. Normally "L", "H" pulse: tape top.
58	PF0/AN4	DEW	I	SS	Dew condensation detection signal. "L" when dew condensation.
59	AN3	BATT SENSE	I	SS	Battery voltage input for battery end detection. 1/2 divided by RB504.
60	AN2	ATF ERROR	I	SS	ATF error, ATF lock error input.
61	AN1	S REEL FG	I	SS	S reel FG signal input.
62	AN0	T REEL FG	I	SS	T reel FG signal input.
63	PG7/EXI1	PG7 (N.C.)			Connected to GND.
64	PG6/EXI0	CAM VD	I	CAM SG	VD signal from camera circuit sync generator. V period pulse.
65	PG5/SYNC1	ODD/EVEN	I	CAM SG	FIELD signal from camera circuit sync generator. 2V period pulse.
66	PG4/SYNC0	COMP SYNC	I	VI	Composite sync signal separated from REC/PB Y signal.
67	PG3/PBCTL	PB SP/$\overline{\text{LP}}$	I	SS	Discriminates PB tape REC mode when CUE/REVIEW/FF and REW. "L": LP.
68	PG2/DPG	DRUM PG	I	SS	Drum PG signal input. For drum phase servo 40 msec period "H" pulse.
69	PG1/DFG	DRUM FG	I	SS	Drum FG signal input. For drum speed servo 3.3 msec period pulse.
70	PG0/CFG	CAP FG	I	MD	Capstan FG signal input. For capstan speed servo. Approx. 1388 Hz when REC/PB (SP).
71	PE7/DAB0	N.C.	O		N.C.
72	PE6/DAB0	T/E LED ON	O	SS	Tape LED ON/OFF signal. 100 msec period "H" pulse when REC/PB.
73	PE5/DAA1	N.C.	O		N.C.
74	PE4/DAA0	N.C.	O		
75	PE3/PWM1	CAP PWM	O	SS	Capstan error signal output 20.15 μsec PWM signal.
76	PE2/PWM0	DRUM PWM	O	SS	Drum error signal output 20.15 μsec PWM signal.
77	PE1/EC/INT2	C FG HMS	I	MD	Capstan FG signal input. For tape counter.
78	PE0/INT0	$\overline{\text{S IN}}$			"L" when plug is inserted in S VIDEO terminal.
79	P17/ST1	LANC IN	I	SS	Control L serial data input.
80	P16/SO1	LANC OUT	O	SS	Control L serial data output.
81	P15/SCK1	LIMIT CONT (1)	I	SS	Loading motor limiter ON detection signal. Normally "H", "L" when limiter ON.
82	P14/INT1	AGC SLOW			Not used.
83	P13/TO	DRUM ON	O	SS	Drum driver ON/OFF control signal. "H" when drum ON.
84	P12/PWM	CLOG	O	SS	Head clog detection signal. "L" when no trouble.
85	P11/PO	REF PILOT	O	SS	ATF servo reference pilot signal. Synchronized when drum rotation to output by selecting four frequencies. f1=101.024 kHz, f2=117.188 kHz, f3=162.760 kHz and f4=146.484 kHz.
86	P10/PO				Connected to +5V.
87	PKO	13/10 SW	I	MD	Connected to GND.

Pin No.	Port Name	Signal	I/O	Connection	Function
88	VSS	VSS			GND
89	VDD	VDD			VDD
90	N.C.	(VPP)			Connected to +5V.
91	PA7/PP07	DRUM ACC	O	SS	Drum motor acceleration signal. Normally "L". "H" pulse when SLOW mode.
92	PA6/PP06	DRUM BRK	O	SS	Drum motor brake signal. Normally "L".
93	PA5/PP05	SP/$\overline{\text{LP}}$	O	VI	SP/LP select signal. "L": LP.
94	PA4/PP04		O		N.C.
95	PA3/PP03	OUT SW	O	VI	VIDEO OUT inhibit signal. "H": inhibit.
96	PA2/PP02	IN SW	O	VI	VIDEO IN/OUT select signal. "L": VIDEO IN.
97	PA1/PP01	VA PB MODE	O	ALL	Video/audio circuit REC/PB select signal. "H": PB.
98	PA0/PP00	VI SWP	O	VI	RF switching pulse signal for video circuit. 25 Hz, 50% duty pulse.
99	PB7/PP015	RF SWP	O	ALL	RF switching pulse signal for REC/PB amp and Audio circuit. 25 Hz, 50% duty pulse.
100	0	H CHG	O	VI	Not used.

3-11. MODE CONTROL MICROPROCESSOR PIN FUNCTION (IC506 ON CS-33 BOARD: μPD75316GF-355-3B9)

Pin No.	Port Name	Signal	I/O	Connection	Function
1	S12	S12	O		Segment terminal drive signal to LCD. (Four value output of 0, 1.7, 3.3, 5V)
2	S13	S13	O		
3	S14	S14	O		
4	S15	S15	O		
5	S16	S16	O		
6	S17	S17	O		
7	S18	S18	O		
8	S19	S19	O		
9	S20	S20	O		
10	S21	S21	O		
11	S22	S22	O		
12	S23	S23	O		
13	S24/BP0	EEPROM CS	O		Chip select signal to EEPROM (IC511 on CS-33 board). 1/2V period "L" pulse.
14	S25/BP1	TG STBY 1	O	CAM	Power save control signal to timing generator (IC801 on CS-33 board). Normally "L".
15	S26/BP2	AUDIO IN/OUT	O	AU	Audio input/output control signal. "H": input. "L": output.
16	S27/BP3		O		N.C.
17	S28/BP4	TITLE CS	O	CAM	Chip select signal to DISPLAY CONTROLLER (IC711 on CS-33 board).
18	S29/BP5	REMO CS	O		Chip select signal to sircs remote controller (IC509 on CS-33 board). 1V period "L" pulse.
19	S30/BP6	S RAM CS	O		Chip select signal to S RAM (IC710 on CS-33 board). "H" when using title. Normally, "L".
20	S31/BP7	CAM CS	O	CAM	Chip select signal to camera controller (IC709 on CS-33 board). 1V period "L" pulse.
21	COM0	COM 0	O		Common terminal drive signal to LCD. (Four value output of 0, 1.7, 3.3, 5V)
22	COM1	COM 1	O		
23	COM2	COM 2	O		
24	COM3	COM 3	O		
25	BIAS	BIAS	O		Bias voltage output for voltage deviding resistor.
26	VLC0	VCC 0	I		Power source 0 input Power source for LCD drive.
27	VLC1	VCC 1	I		Power source 1 input
28	VLC2	VCC 2	I		Power source 2 input
29	P40	K OUT 4	O	all	KEY matrix output. 1V period "L" pulse output when corresponding key is pressed. "L" when other cases.
30	P41	K OUT 5	O	all	
31	P42	SYS RESET	O	all	Output signal to reset each IC when power is turned on. Normally "H".
32	P43	TALLY	O	EVF	Tally LED ON/OFF signal. "L": ON.
33	VSS	VSS			GND
34	P50	K OUT 0	O	all	KEY matrix output. 1V period "L" pulse output when corresponding key is pressed. "L" when other cases.
35	P51	K OUT 1	O	all	
36	P52	K OUT 2	O	all	
37	P53	K OUT 3	O	all	
38	P00/INT4	BATT IN	I		Clock select to 32 kHz when "L" and to 4.19 MHz with "H" when Battery is turned on. "L" is select.
39	P01/SCK	SCK	O	all	Serial clock output terminal, Serial clock (2 μS) communication.
40	P02/SO/SB0	DATA TO SLVE	O	all	Serial bus output terminal, Serial clock (2 μS) communication.
41	P03/SI/SB1	DATA TO MSTR	I	all	Serial bus input terminal, Serial clock (2 μS) communication.
42	P10/INT0	SYSTEM SYNC	I	all	(Edge detection vector interruption), System synchronization input port from CXP80624 (IC503 on CS-33 board).
43	P11/INT1	LI PRE END	I		(Edge detection vector interruption), Lithium PRE END is selected with "L".
44	P12/INT2	LANC PWR ON	I		Power on signal input from wired remote control. "L" when power switch pressed.
45	P13/TIO	TITLE BUSY	I	CAM	Busy signal from DISPLAY CONTROLLER (IC711 on CS-33 board).
46	P20/PT00	VTR ON	O	PS	VTR power source (SS5V, VIDEO 5V, AUDIO 5V, EVF 5V, D5V, D4V) control signal. "H" when power switch is in "VTR" or "CAMERA" position.
47	P21	CAM ON	O	PS	CAMERA power source (CAM 5V, +15V, –9V) control signal. "H" when power switch is in "CAMERA" position.
48	P22/PCL	D/A CS	O	VA	Serial data load signal to video circuit EVR (IC008 on VI-113 board) and audio circuit EVR (IC403 on CS-33 board). 1V period "H" pulse.
49	P23/BUZ	BUZ	O		Buzzer output. Normally "L". 2 kHz pulse: alarm.
50	P30/LCDCL	VIDEO CS	O	VA	Chip select signal to Y process IC (IC201 on VI-113 board). 1V period "L" pulse.
51	P31/SYNC	VTR COSM CS	O		Chip select signal to mechanism controller (IC503 on CS-33 board). 1V period "L" pulse.
52	P32	SG CS	O	CAM	Chip select signal to sync generator (IC704 on CS-33 board). 1V period "L" pulse.
53	P33	CRTC CS	O	CAM	Strobe signal for character generator (IC703 on CS-33 board). 1V period "H" pulse.
54	VDD	VDD			VDD
55	XT1	XT1	I		SUB system clock. 32 kHz oscillation terminal.
56	XT2	XT2			
57	N.C.	N.C.			Connected to +5V.
58	X1	X1	I		Main system clock. 4.19 MHz oscillation terminal.
59	X2	X2	I		
60	P60/KK0	K IN 0	I	all	KEY matrix input. 1V period "L" pulse input when corresponding key is pressed. "H" when other case.
61	P61/KR1	K IN 1	I	all	
62	P62/KR2	K IN 2	I	all	
63	P63/KR3	K IN 3	I	all	
64	P70/KR4	K IN 4	I	all	
65	P71/KP5	K IN 5	I	all	
66	P72/KP6	K IN 6	I	all	
67	P73/KP7	CC DOWN	I	MD	Cassette compartment lock switch input. "L": Lock.
68	RESET	RESET	I		System reset input. "L": Reset, Normally: "H".
69	S0	S0	O		Segment terminal drive signal to LCD. (Four value output of 0, 1.7, 3.3, 5V)
70	S1	S1	O		
71	S2	S2	O		
72	S3	S3	O		
73	S4	S4	O		
74	S5	S5	O		
75	S6	S6	O		
76	S7	S7	O		
77	S8	S8	O		
78	S9	S9	O		
79	S10	S10	O		
80	S11	S11	O		

3-12. INTERFACE

3-12-1. System Control – Video/Audio Block Interface (CS-33 BOARD)

NAME	I/O	No.	VTR MODE																CAMERA MODE					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB-PAUSE	FRAME	SLOW	X2	SHUTTLE EDIT*3		REC*4	REC*4 PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW					FWD	REV					FWD	RVS	FWD	RVS
SP/LP	O	IC503 (93)	*1	H	H	*2	*2	*2	*2	*2	*1	*1	*1	*1	*2	*2	*6	H/L	H/L	*6	*2	*2	H	H
VA PB MODE	O	IC503 (97)	L	L	L	H	H	H	H	H	H	H	H	H	H	H	L	L	L	L	H	H	H	H
AUDIO MUTE *13	O	IC503 ㊽	L	L	L	H	H	L	H	H	H	H	H	L	H	H	L	L	L	L	H	H	H	H
VIDEO MUTE	O	IC503 ㉒	*14	*14	*14	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*14	*14	L	L	*15	*15	*15	*15
CAM/LINE	O	IC503 ㉘	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	L	L	L	L
JOG VD	O	IC503 ⑤	L	L	L	*5	*5	L	*5	*5	*5	*5	*5	*5	*5	*5	L	L	L	L	*5	*5	*5	*5
RP PB MODE	O	IC503 ③	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
FE ON	O	IC503 ④	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
RF SWP	O	IC503 (99)	L	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
JOG	O	IC503 ⑥	L	L	L	H	H	L	H	H	H	H	H	H	H	H	L	L	L	L	H	H	H	H
VIDEO CS	O	IC506 ㊿	V period "L" pulse																					
VIDEO D/A CS	O	IC506 ㊽	V period 'H" pulse																					
DATA TO MSTR	I	IC506 ㊶	V period "L" pulse																					
DATA TO SLVE	O	IC506 ㊵	V period pulse train																					
SCK	I	IC506 ㊴	V period "H" pulse																					
PB SP/LP	I	IC503 (67)	L	*10	*10	*10	*10	L	*10	*10	*10			*10	L	*10	H	H	H	H	L	*10	L	*10
CLOG	I	IC503 (84)	H	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	*11	H	*11	*11	H	*11	*11	*11	*11
COMP SYNC	I	IC503 (66)	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12
COMP REC	O	IC503 ㉞	*16	*16	*16	L	L	L	L	L	L	L	L	L	L	L	*16	*16	L	L	L	L	L	L

*1. Outputs discrimination result of the mode just before. "H": SP mode, "L": LP mode.

*2. Outputs discrimination result of the playback tape. "H" : SP mode, "L": LP mode.

*3. Edit search button pressed when playback pause mode.

*4. E, Australian model only.

*5. False VD signal

*6. By REC MODE switch "H": SP mode, "L": LP mode.

*7. 25 Hz duty 50% pulse (synchronized with drum rotation)

*10. "H": SP recording area on tape. "L": LP recording area.

*11. "H": no recording area or drop out area on tape. Head clog detection input.

*12. Composite sync signal input separated from line input video signal, camera video signal or playback video signal. (polarity +)

*13. "H" during camera mode load/unload.

*14. "L" when external input (video) present. "H" when other cases.

*15. "H" when tape no signal. "L" when other cases.

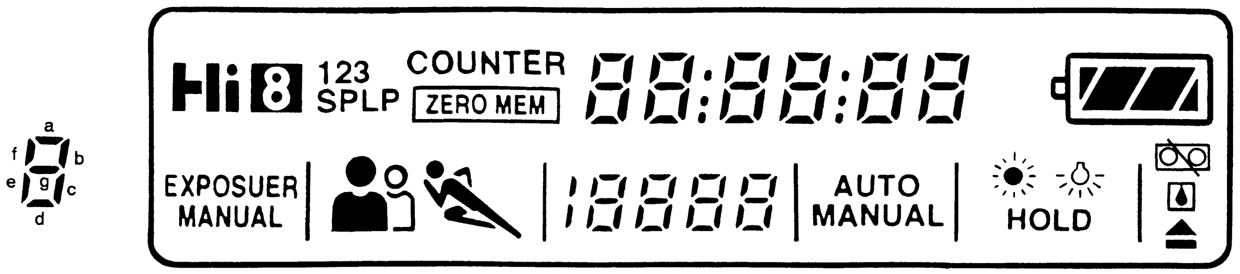
*16. "L" when a plug is inserted in S VIDEO terminal. "H" when others.

3-12-2. System Control – Servo Block Interface

NAME	I/O	No.	VTR MODE																CAMERA MODE					
			STOP	FF	REW	FR SEARCH		PB	PICTURE SEARCH		PB• PAUSE	FRAME	SLOW	X2	SHUTTLE EDIT*12		REC	REC PAUSE	STAND BY	REC	EDIT SEARCH		REC REVIEW	
						CUE	REVIEW		CUE	REVIEW					FWD	REV					FWD	RVS	FWD	RVS
T.REEL FG	I	IC503 (62)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
S.REEL FG	I	IC503 (61)	–	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	–	–	*1	*1	*1	*1	*1
ATF ERROR	I	IC503 (60)	–	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
DRUM PG	I	IC503 (68)	–	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3	*3
DRUM FG	I	IC503 (69)	–	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP FG/ CFG HMS	I	IC503 (70), (77)	–	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
CAP ON	O	IC503 ①	L	H	H	H	H	H	H	H	L	*8	*8	H	H	H	H	L	L	H	H	H	H	H
REF PILOT	O	IC503 (85)	*7	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
RP PB MODE	O	IC503 ③	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H	H	H	H
DRUM FWD/$\overline{\text{RVS}}$ *10	O	IC503 ㉟	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
CAP FWD/ $\overline{\text{RVS}}$	O	IC503 ②	L	H	L	H	L	H	H	L	L	*8	*8	H	H	L	H	L	L	H	H	L	H	L
DRUM PWM	O	IC503 (76)	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9
CAP PWM	O	IC503 (75)	L	*9	*9	*9	*9	*9	*9	*9	L	*9	*9	*9	*9	*9	*9	L	L	*9	*9	*9	*9	*9
$\overline{\text{LM LIM CONT}}$ *11	O	IC503 ㉝	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
DRUM ON	O	IC503 (83)	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
DRUM ACC	O	IC503 (91)	L	L	L	L	L	L	L	L	L	L	*8	L	L	L	L	L	L	L	L	L	L	L
DRUM BRK	O	IC503 (92)	L	L	L	L	L	L	L	L	L	L	*8	L	L	L	L	L	L	L	L	L	L	L

*1. Inputting waveform which is similar to sine wave according to reel rotation.
*2. ATF error voltage input
*3. One PG pulse input per one drum rotation, approx. 25 Hz.
*4. 12 FG pulses input per one drum rotation, approx. 300 Hz.
*5. 520 FG pulses input per one capstan rotation. Approx. 1388 Hz when REC/PB (SP). 694 Hz when PB (LP).
*6. Four frequencies output synchronized with drum rotation. f1=101.024 kHz, f2=117.188 kHz, f3=162.760 kHz and f4=146.484 kHz.
*7. f2 (117.188 kHz) output
*8. "H" pulse when tape run.
*9. 21.5 μsec period PWM signal
*10. Normally "H". Temporary "L" when load (drum reverse rotation).
*11. Temporary "H" when cassette loading (finger catch protection).
*12. Edit search button pressed when playback pause mode.

LCD Port Layout



	COM. 0	COM. 1	COM. 2	COM. 3
S0	N (▰)	P (◢)	H (◙)	G (⌧)
S23	F (HOLD)	Auto (Upper of HOLD)	E (☼)	D (☀)
S2	2	1	SP	A (Hi8)
S3	3	LP	MAN B (👥)	EXPOSURE MANUAL
S4	COUNTER	ZERO MEM	MAN C (⛷)	R1, R2, R3, R4, R5
S5	1f	1g	1e	1d
S6	1a	1b	1c	1 [Right of R2]
S7	2f	2g	2e	2d
S8	2a	2b	2c	MANUAL
S9	3f	3g	3e	3d
S10	3a	3b	3c	0 [Left of R3]
S11	4f	4g	4e	4d
S12	4a	4b	4c	Auto [Upper of MANUAL]
S13	5f	5g	5e	5d
S14	5a	5b	5c	POINT (LEFT)
S15	6f	6g	6e	6d
S16	6a	6b	6c	Colon (LEFT/RIGHT)
S17	7f	7g	7e	7d
S18	7a	7b	7c	POINT (RIGHT)
S19	8f	8g	8e	8d
S20	8a	8b	8c	PM
S21	9f	9g	9e	9d
S22	9a	9b	9c	AM
S1	L (◤)	M (▰)	J (⏏)	K (▭)

Audio matrix control signal

Switches the internal switch of IC401 of the CS-33 board according to the position of the HiFi sound switch and the playback tape.

REC mode

Mode	AUDIO MATRIX CONTROL SIGNAL			RECORDING SIGNAL	
	MAT ON/$\overline{\text{OFF}}$ (IC503 ㉖)	MAT SEL 1 (IC503 ㉔)	MAT SEL 2 (IC503 ㉕)	REC AFM 1.5 MHz	REC AFM 1.7 MHz
MONO *1	L	L	H	MONO	— *2
STEREO	H	—	—	$\frac{L+R}{2}$	$\frac{L-R}{2}$

*1. When the monaural mic is connected to the external mic jack (CAMERA mode) or when the plug is not inserted in the AUDIO IN R terminal. (VTR mode).

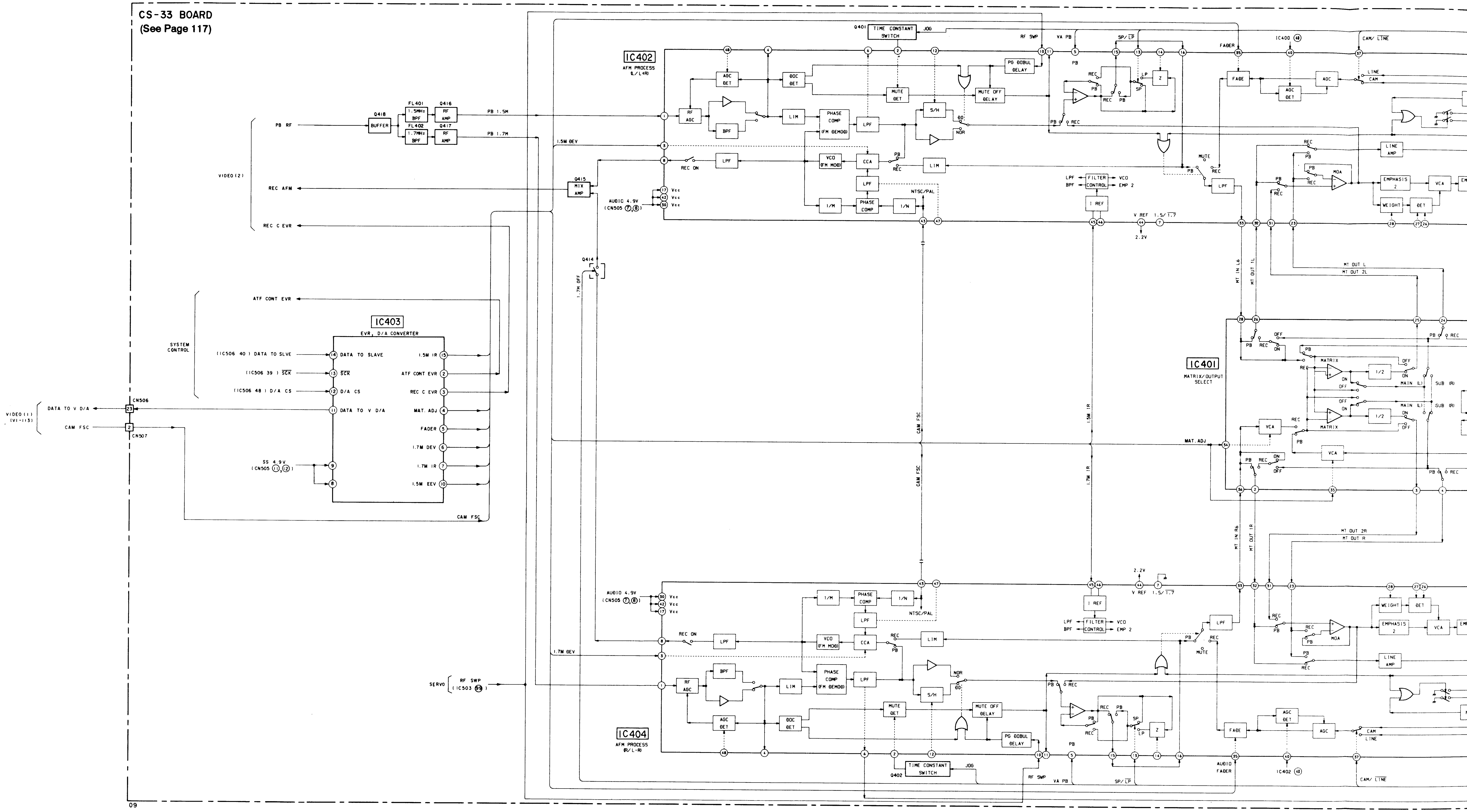
*2. The "1.7M $\overline{\text{ON}}$/OFF" signal of Pin ㊾ of IC503 becomes "H" and the REC AFM 1.7 MHz signal will not be recorded.

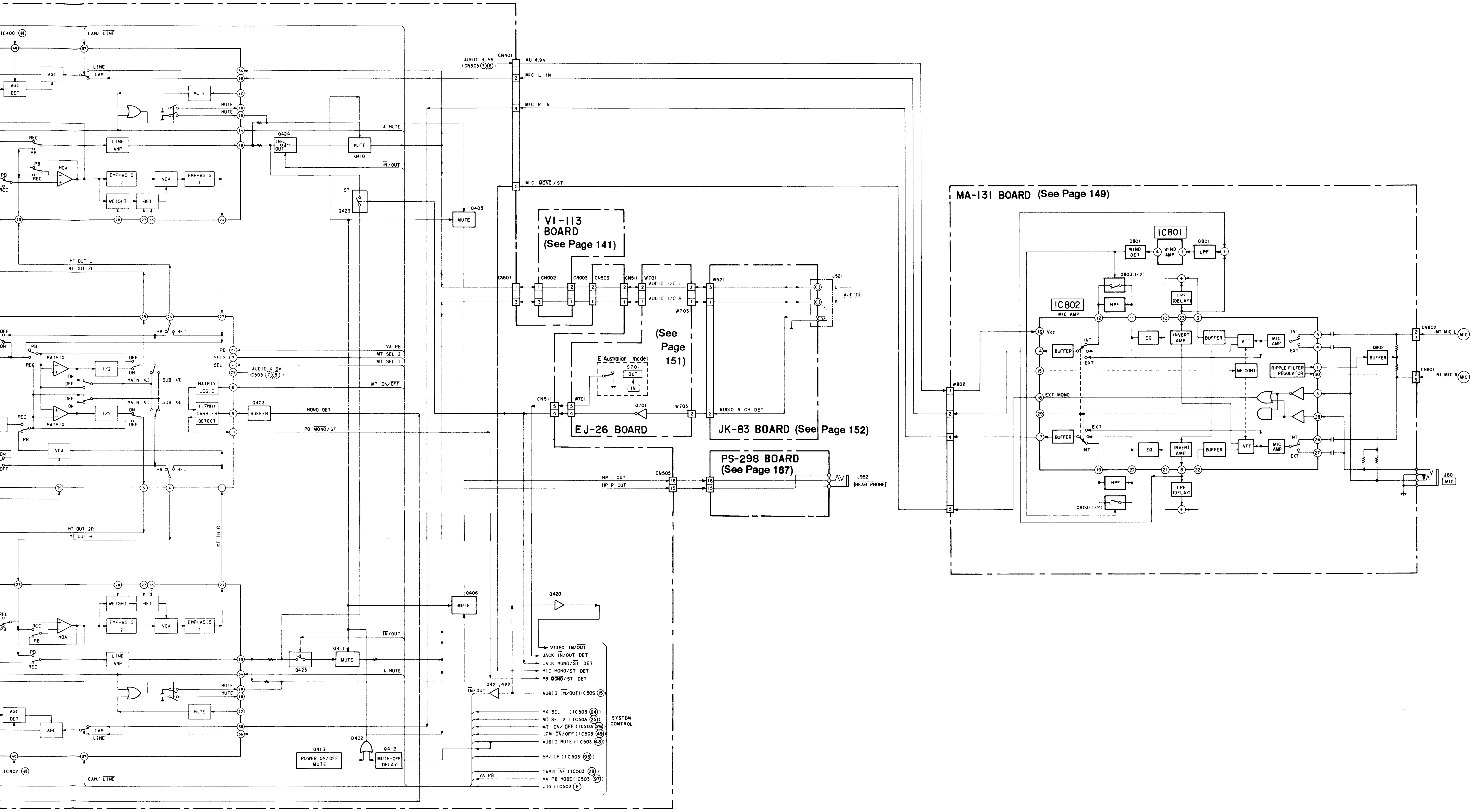
PB mode

PLAYBACK TAPE	HiFi SOUND SWITCH (EJ-26 BOARD S704)	AUDIO MATRIX CONTROL SIGNAL			PLAYBACK SIGNAL	
		MAT ON/$\overline{\text{OFF}}$ (IC503 ㉖)	MAT SEL 1 (IC503 ㉔)	MAT SEL 2 (IC503 ㉕)	L	R
MONO		L	L	H	MONO	MONO
STEREO	GREEN POSITION	H	L	L	L	R
	1	L	L	H	$\frac{L+R}{2}$ (=MONO)	$\frac{L+R}{2}$ (=MONO)
	2	L	H	L	$\frac{L-R}{2}$ *3	$\frac{L-R}{2}$ *3
BILINGUAL	GREEN POSITION	H	L	L	MAIN + SUB	MAIN – SUB
	1	L	L	H	MAIN	MAIN
	2	L	H	L	SUB	SUB

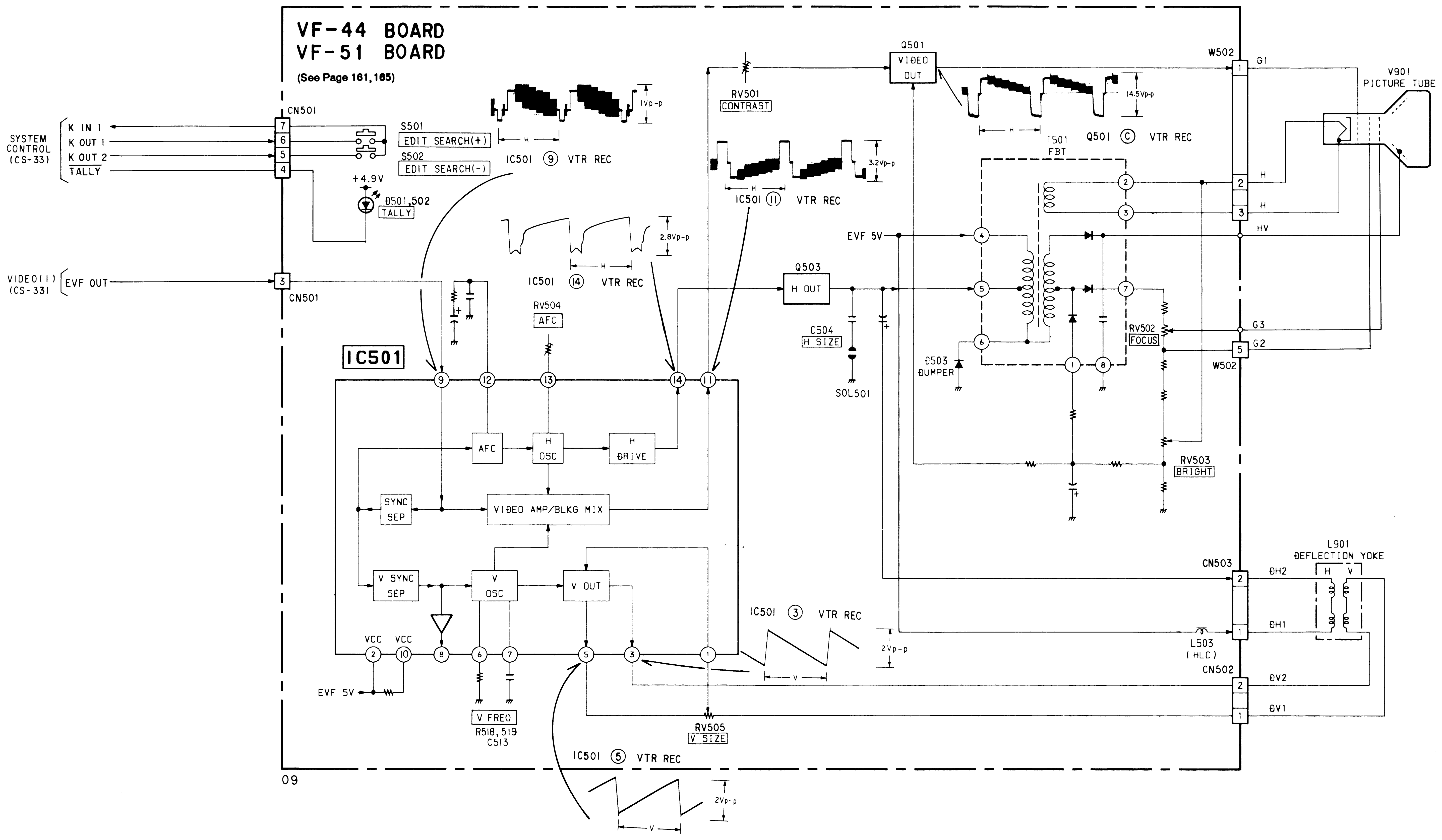
*3. An unnatural sound will be produced.

3-13. AUDIO BLOCK DIAGRAM

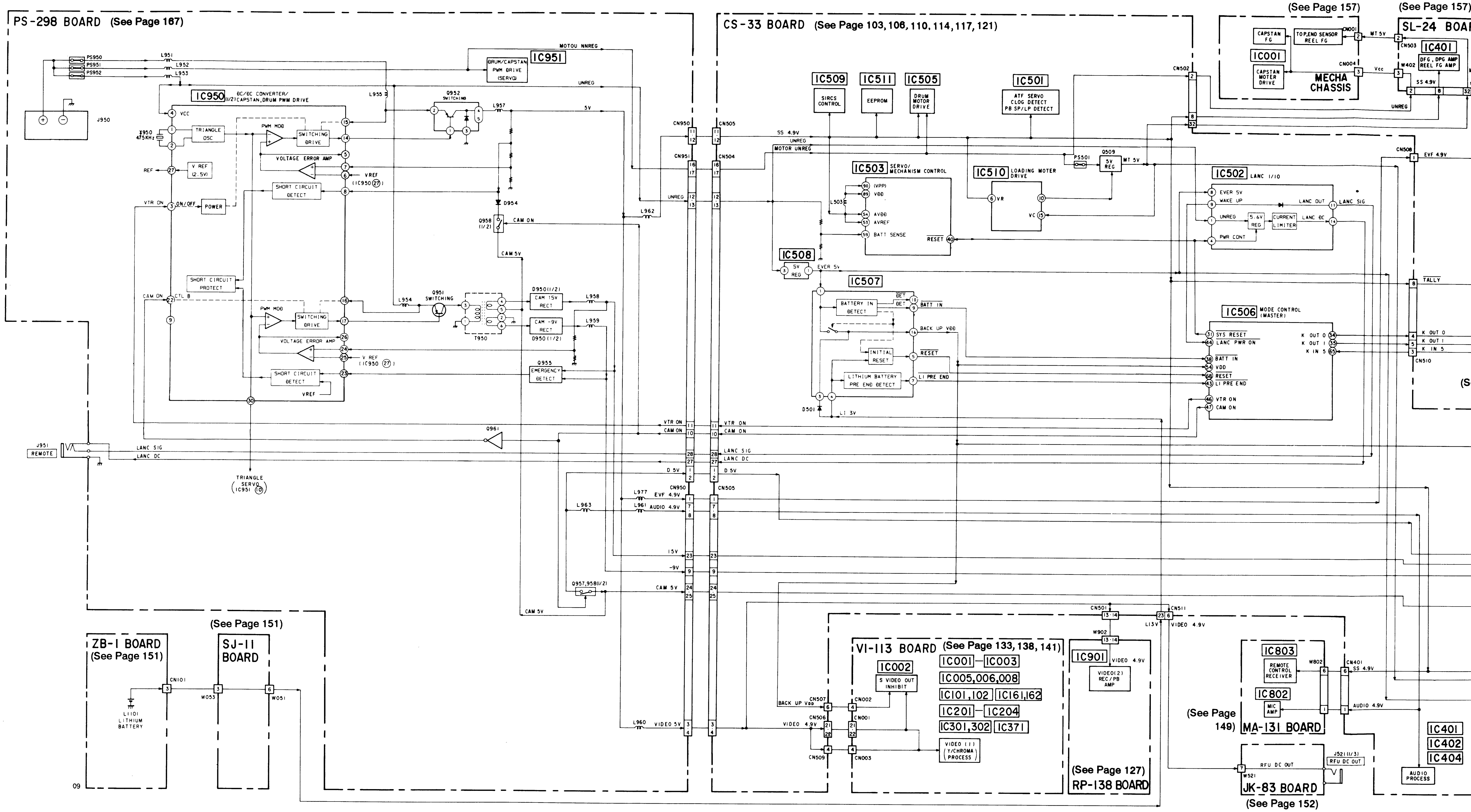

CS-33 BOARD
(See Page 117)
IC402
AFM PROCESS
(L/L+R)
IC404
AFM PROCESS
(R/L-R)
IC401
MATRIX/OUTPUT SELECT
IC403
EVR, D/A CONVERTER
Q418
BUFFER
FL401
1.5MHz BPF
FL402
1.7MHz BPF
Q416
RF AMP
Q417
RF AMP
Q415
MIX AMP
Q414
Q401
TIME CONSTANT SWITCH
Q402
TIME CONSTANT SWITCH
JOG
PB RF
VIDEO (2)
REC AFM
REC C EVR
PB 1.5M
PB 1.7M
1.5M DEV
1.7M DEV
1.7M OFF
AUDIO 4.9V
(CN505 ⑦,⑧)
Vcc
REC ON
RF AGC
AGC DET
DOC DET
BPF
LIM
PHASE COMP
(FM DEMOD)
LPF
MUTE DET
S/H
NOR
PG DOUBL DELAY
MUTE OFF DELAY
VCO
(FM MOD)
CCA
1/M
1/N
NTSC/PAL
FILTER CONTROL
I REF
V REF
1.5/1.7
2.2V
EMP 2
RF SWP
VA PB
SP/LP
FADER
AUDIO FADER
IC400 ㊽
IC402 ㊽
CAM/LINE
LINE
CAM
AGC
FADE
MUTE
REC
PB
MOA
LINE AMP
EMPHASIS 2
VCA
WEIGHT
DET
MT OUT L
MT OUT 2L
MT OUT 2R
MT OUT R
MT IN L6
MT OUT 1L
MT IN R6
MT OUT 1R
MATRIX
1/2
ON
OFF
MAIN (L)
SUB (R)
MAT. ADJ
CAM FSC
1.5M IR
1.7M IR
ATF CONT EVR
SYSTEM CONTROL
(IC506 40) DATA TO SLVE
(IC506 39) SCK
(IC506 48) D/A CS
DATA TO SLAVE
D/A CS
DATA TO V D/A
1.5M IR
ATF CONT EVR
REC C EVR
MAT. ADJ
FADER
1.7M DEV
1.7M IR
1.5M DEV
SS 4.9V
(CN505 ①,②)
CN506
CN507
VIDEO (1)
(VI-113)
DATA TO V D/A
CAM FSC
SERVO
RF SWP
(IC503 55)
09

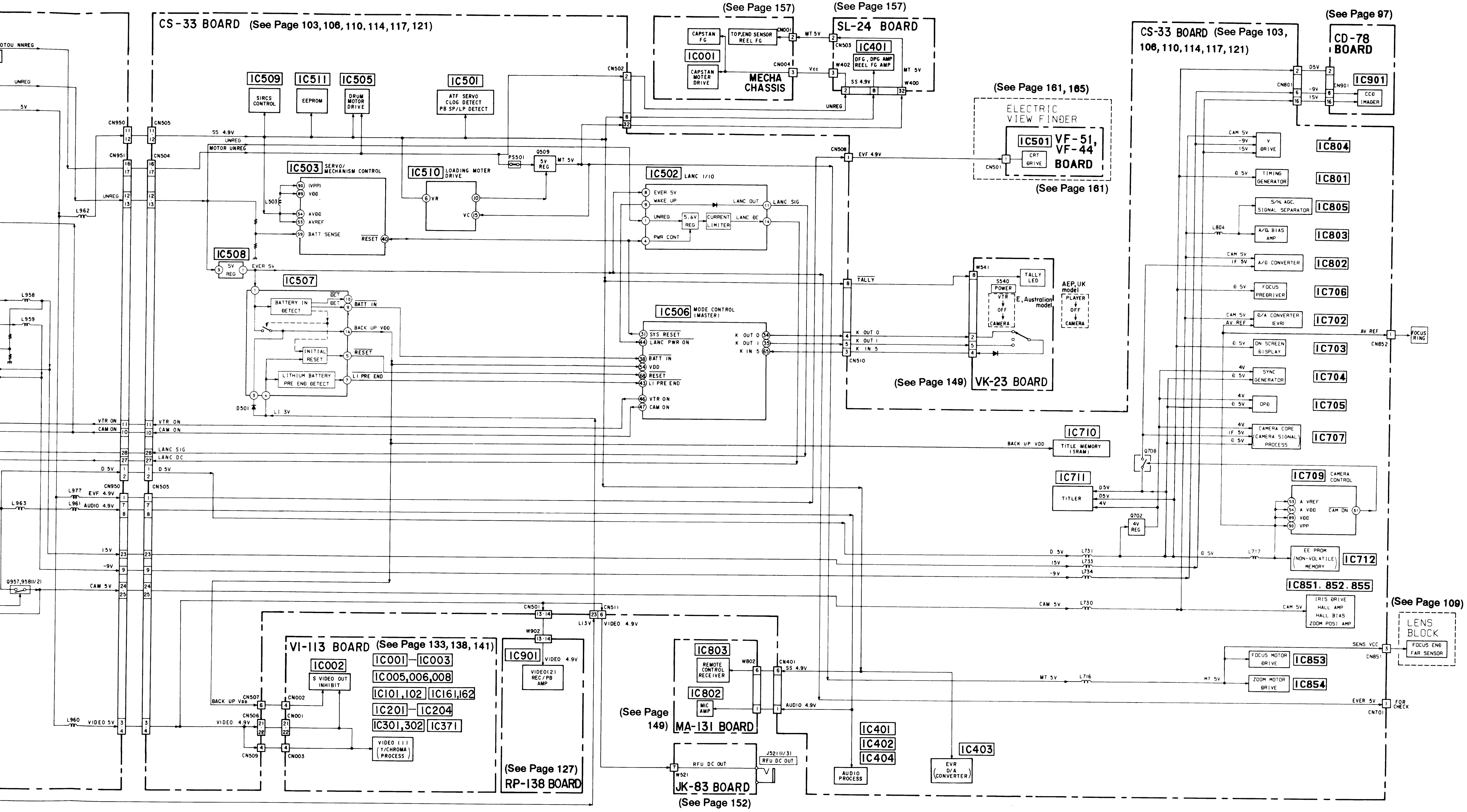

IC400 (48)
CAM/ LINE
AGC
AGC DET
LINE
CAM
MUTE
A MUTE
REC
PB
LINE AMP
MOA
EMPHASIS 2
VCA
EMPHASIS 1
WEIGHT
DET
Q424
IN/OUT
MUTE
Q410
Q423
ST
Q405
MT OUT L
MT OUT 2L
MT OUT 2R
MT OUT R
OFF
ON
MATRIX
1/2
MAIN (L)
SUB (R)
PB
SEL 2
SEL 1
AUDIO 4.9V (IC505 ⑦⑧)
MATRIX LOGIC
1.7MHz CARRIER DETECT
Q403
BUFFER
MONO DET
PB MONO/ST
VA PB
MT SEL 2
MT SEL 1
MT ON/OFF
MT IN R
Q406
Q411
Q425
Q413
POWER ON/OFF MUTE
D402
Q412
MUTE-OFF DELAY
IC402 (48)
CN401
AU 4.9V
MIC L IN
MIC R IN
MIC MONO / ST
VI-113 BOARD (See Page 141)
CN507
CN002
CN003
CN509
CN511
W701
AUDIO I/O L
AUDIO I/O R
W703
W521
J521
L
R
AUDIO
(See Page 151)
E Australian model
S701
OUT
IN
Q701
AUDIO R CH DET
EJ-26 BOARD
JK-83 BOARD (See Page 152)
CN505
HP L OUT
HP R OUT
PS-298 BOARD (See Page 167)
J952
HEAD PHONE
Q420
VIDEO IN/OUT
JACK IN/OUT DET
JACK MONO/ST DET
MIC MONO/ST DET
PB MONO/ST DET
Q421, 422
IN/OUT
AUDIO IN/OUT (IC506 ⑮)
MX SEL 1 (IC503 ㉔)
MT SEL 2 (IC503 ㉕)
MT ON/OFF (IC503 ㉖)
1.7M ON/OFF (IC503 ㊾)
AUDIO MUTE (IC503 ㊽)
SP/LP (IC503 (93))
CAM/LINE (IC503 ㉘)
VA PB MODE (IC503 (97))
JOG (IC503 ⑥)
SYSTEM CONTROL
MA-131 BOARD (See Page 149)
W802
IC801
D801
WIND DET
WIND AMP
Q801
LPF
Q803(1/2)
HPF
LPF (DELAY)
IC802
MIC AMP
Vcc
BUFFER
INT
EXT
EQ
INVERT AMP
ATT
NF CONT
RIPPLE FILTER REGULATOR
EXT MONO
Q802
CN802
INT MIC L
MIC
CN801
INT MIC R
J801

3-14. EVF BLOCK DIAGRAM


VF-44 BOARD
VF-51 BOARD
(See Page 161, 165)
SYSTEM CONTROL (CS-33)
K IN 1
K OUT 1
K OUT 2
TALLY
CN501
S501
EDIT SEARCH(+)
S502
EDIT SEARCH(-)
+4.9V
D501,502
TALLY
VIDEO(1) (CS-33)
EVF OUT
CN501
IC501 ⑨ VTR REC
1Vp-p
H
IC501 ⑪ VTR REC
3.2Vp-p
IC501 ⑭ VTR REC
2.8Vp-p
RV504
AFC
RV501
CONTRAST
Q501
VIDEO OUT
Q501 Ⓒ VTR REC
14.5Vp-p
T501
FBT
W502
G1
V901
PICTURE TUBE
H
HV
EVF 5V
Q503
H OUT
C504
H SIZE
SOL501
D503
DAMPER
RV502
FOCUS
G3
G2
RV503
BRIGHT
IC501
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
VCC
EVF 5V
V FREQ
R518, 519
C513
RV505
V SIZE
IC501 ③ VTR REC
2Vp-p
V
IC501 ⑤ VTR REC
2Vp-p
L901
DEFLECTION YOKE
CN503
DH2
DH1
L503
(HLC)
CN502
DV2
DV1
09

3-15. POWER BLOCK DIAGRAM

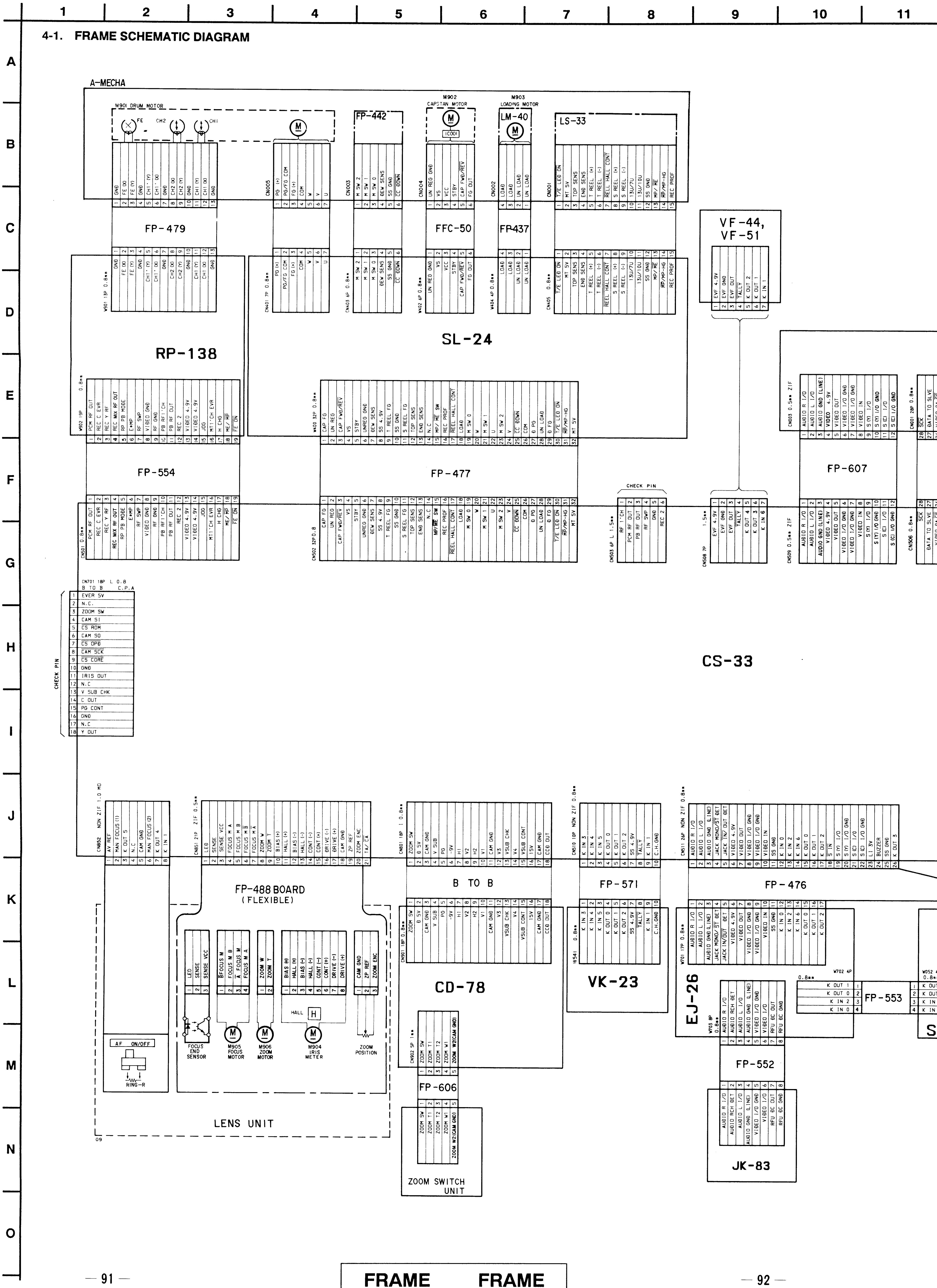

PS-298 BOARD (See Page 167)
CS-33 BOARD (See Page 103, 106, 110, 114, 117, 121)
(See Page 157)
(See Page 157)
SL-24 BOAR
IC951
DRUM/CAPSTAN PWM DRIVE (SERVO)
IC950 DC/DC CONVERTER/ (1/2) CAPSTAN, DRUM PWM DRIVE
J950
X950 475KHz
TRIANGLE OSC
V REF (2.5V)
POWER
PWM MOD
SWITCHING DRIVE
VOLTAGE ERROR AMP
SHORT CIRCUIT DETECT
SHORT CIRCUIT PROTECT
Q952 SWITCHING
Q951 SWITCHING
T950
D950 (1/2) CAM 15V RECT
CAM -9V RECT
Q955 EMERGENCY DETECT
Q958 (1/2)
D954
Q961
J951 REMOTE
LANC SIG
LANC DC
TRIANGLE SERVO (IC951 ⑩)
Q957,958(1/2)
MOTOU NNREG
UNREG
5V
CAM ON
CAM 5V
VTR ON
D 5V
EVF 4.9V
AUDIO 4.9V
15V
-9V
VIDEO 5V
CN950
CN951
CN505
CN504
IC509 SIRCS CONTROL
IC511 EEPROM
IC505 DRUM MOTOR DRIVE
IC501 ATF SERVO CLOG DETECT PB SP/LP DETECT
IC503 SERVO/ MECHANISM CONTROL
IC510 LOADING MOTOR DRIVE
Q509 5V REG
PS501
MT 5V
IC508 5V REG
EVER 5V
IC507
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
BATT IN
BACK UP VDD
RESET
LI PRE END
LI 3V
D501
IC502 LANC I/O
EVER 5V
WAKE UP
LANC OUT
LANC SIG
5.6V REG
CURRENT LIMITER
LANC DC
PWR CONT
IC506 MODE CONTROL (MASTER)
SYS RESET
LANC PWR ON
BATT IN
VDD
RESET
LI PRE END
VTR ON
CAM ON
K OUT 0
K OUT 1
K IN 5
CN502
CN508
CN510
TALLY
CAPSTAN FG
TOP,END SENSOR REEL FG
IC001
CAPSTAN MOTER DRIVE
MECHA CHASSIS
CN001
CN004
CN503
IC401
W402
DFG, DPG AMP REEL FG AMP
SS 4.9V
ZB-1 BOARD (See Page 151)
(See Page 151)
SJ-11 BOARD
CN101
W053
W051
L1101 LITHIUM BATTERY
VI-113 BOARD (See Page 133, 138, 141)
IC002 S VIDEO OUT INHIBIT
IC001-IC003
IC005,006,008
IC101,102 IC161,162
IC201-IC204
IC301,302 IC371
VIDEO (1) (Y/CHROMA PROCESS)
IC901 VIDEO(2) REC/PB AMP
(See Page 127)
RP-138 BOARD
BACK UP VDD
CN507
CN506
CN509
CN002
CN001
CN003
CN501
CN511
W902
VIDEO 4.9V
IC803 REMOTE CONTROL RECEIVER
IC802 MIC AMP
(See Page 149)
MA-131 BOARD
W802
CN401
JK-83 BOARD
(See Page 152)
RFU DC OUT
J521 (1/3)
W521
IC401
IC402
IC404
AUDIO PROCESS
09


CS-33 BOARD (See Page 103, 106, 110, 114, 117, 121)
IC509 SIRCS CONTROL
IC511 EEPROM
IC505 DRUM MOTOR DRIVE
IC501 ATF SERVO CLOG DETECT PB SP/LP DETECT
IC503 SERVO/MECHANISM CONTROL
IC510 LOADING MOTOR DRIVE
IC502 LANC I/O
IC508 5V REG
IC507
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
IC506 MODE CONTROL (MASTER)
SYS RESET
LANC PWR ON
BATT IN
VDD
RESET
LI PRE END
VTR ON
CAM ON
K OUT 0
K OUT 1
K IN 5
EVER 5V
WAKE UP
UNREG
5.6V REG
CURRENT LIMITER
PWR CONT
LANC OUT
LANC DC
LANC SIG
SS 4.9V
MOTOR UNREG
MT 5V
PS501
Q509
D501
LI 3V
L503
L958
L959
L962
L963
L960
L961
L977
Q957,958(1/2)
CN950
CN951
CN505
CN504
CN502
CN506
CN507
CN509
CN508
CN510
CN511
CN501
D 5V
EVF 4.9V
AUDIO 4.9V
15V
-9V
CAM 5V
VIDEO 5V
BACK UP VDD
VIDEO 4.9V
(See Page 157)
CAPSTAN FG
TOP,END SENSOR REEL FG
IC001 CAPSTAN MOTOR DRIVE
MECHA CHASSIS
CN001
CN004
Vcc
SL-24 BOARD
IC401 DFG, DPG AMP REEL FG AMP
CN503
W402
W400
(See Page 161, 165)
ELECTRIC VIEW FINDER
IC501 CRT DRIVE
VF-51, VF-44' BOARD
(See Page 161)
TALLY
W541
TALLY LED
S540 POWER
VTR
OFF
CAMERA
E, Australian model
AEP, UK model
PLAYER
(See Page 149) VK-23 BOARD
VI-113 BOARD (See Page 133, 138, 141)
IC002 S VIDEO OUT INHIBIT
IC001–IC003
IC005, 006, 008
IC101, 102
IC161, 162
IC201–IC204
IC301, 302
IC371
VIDEO (1) (Y/CHROMA PROCESS)
CN002
CN001
CN003
W902
IC901 VIDEO(2) REC/PB AMP
(See Page 127) RP-138 BOARD
L13V
IC803 REMOTE CONTROL RECEIVER
IC802 MIC AMP
W802
(See Page 149) MA-131 BOARD
CN401
JK-83 BOARD
(See Page 152)
RFU DC OUT
J521(1/3)
W521
IC401
IC402
IC404
AUDIO PROCESS
IC403 EVR (D/A CONVERTER)
CS-33 BOARD (See Page 103, 106, 110, 114, 117, 121)
(See Page 97)
CD-78 BOARD
IC901 CCD IMAGER
CN801
CN901
D5V
-9V
15V
V DRIVE
IC804
TIMING GENERATOR
IC801
S/H, AGC, SIGNAL SEPARATOR
IC805
L804
A/D BIAS AMP
IC803
A/D CONVERTER
IC802
FOCUS PREDRIVER
IC706
D/A CONVERTER (EVR)
IC702
AV REF
ON SCREEN DISPLAY
IC703
SYNC GENERATOR
IC704
OPD
IC705
CAMERA CORE (CAMERA SIGNAL PROCESS)
IC707
FOCUS RING
CN852
IC710 TITLE MEMORY (SRAM)
IC711 TITLER
Q708
Q702 4V REG
IC709 CAMERA CONTROL
A VREF
A VDD
VDD
VPP
CAM ON
L731
L733
L734
L717
EE PROM (NON-VOLATILE) MEMORY
IC712
IC851, 852, 855
IRIS DRIVE HALL AMP HALL BIAS ZOOM POSI AMP
L730
(See Page 109)
LENS BLOCK
FOCUS END FAR SENSOR
CN851
SENS VCC
FOCUS MOTOR DRIVE
IC853
ZOOM MOTOR DRIVE
IC854
L716
EVER 5V
FOR CHECK
CN701

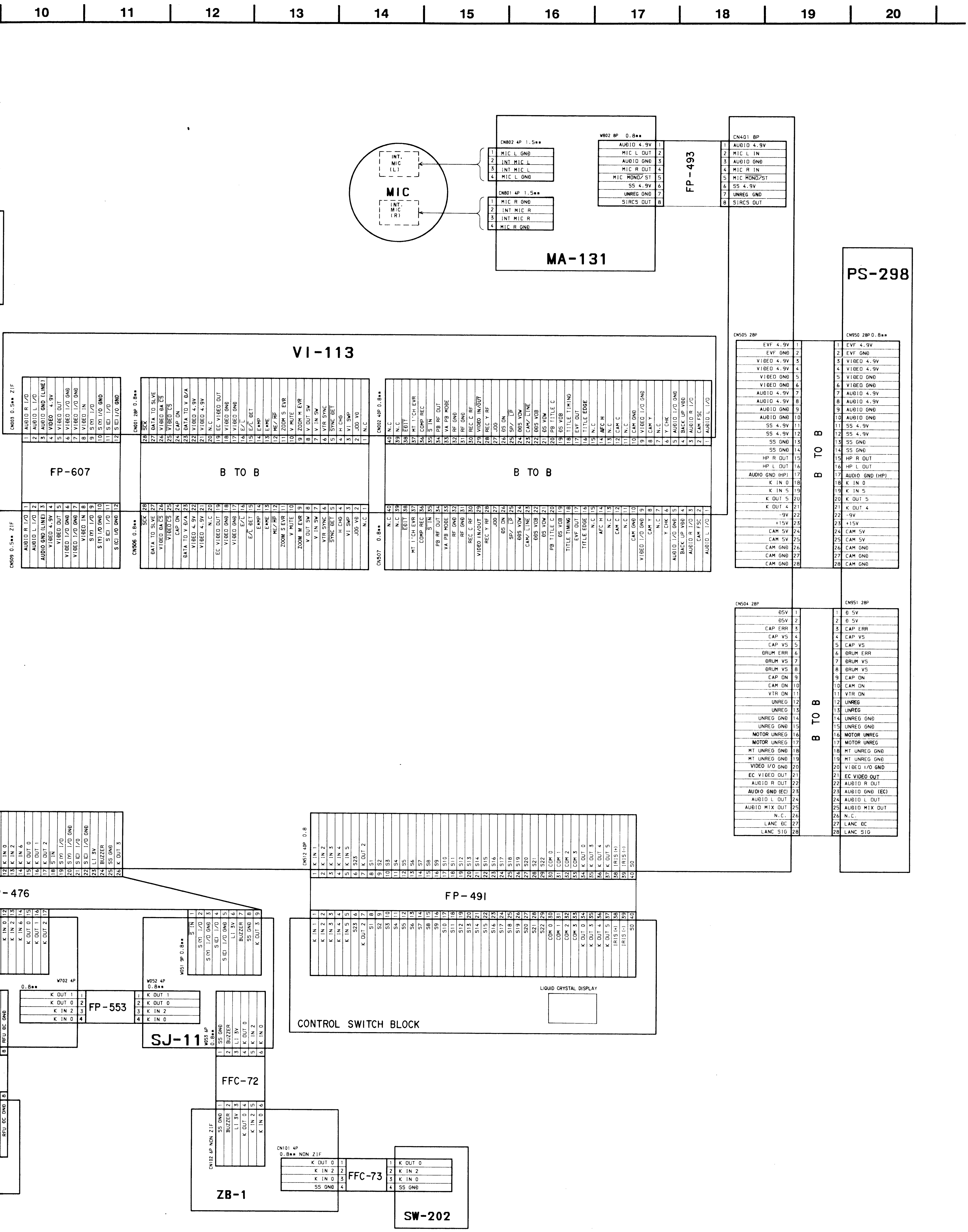
SECTION 4

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
A-MECHA
M901 DRUM MOTOR
FE
CH2
CH1
M902 CAPSTAN MOTOR
IC001
M903 LOADING MOTOR
FP-442
LM-40
LS-33
CN005
CN003
CN004
CN002
CN001
FP-479
FFC-50
FP-437
VF-44, VF-51
EVF 4.9V
EVF GND
EVF OUT
TALLY
K OUT 2
K OUT 1
K IN 1
W901 13P 0.8
CN401 7P 0.8
CN403 6P 0.8
W402 6P 0.8
W404 4P 0.8
CN405 0.8
SL-24
RP-138
W902 19P 0.8
W400 32P 0.8
CN003 0.5 ZIF
CN001 28P 0.8
FP-554
FP-477
FP-607
CHECK PIN
CN501 0.8
CN502 32P 0.8
CN503 6P L 1.5
CN508 7P
CN509 0.5 ZIF
CN506 0.8
CN701 18P L 0.8
B TO B C.P.A
1 EVER 5V
2 N.C.
3 ZOOM SW
4 CAM SI
5 CS ROM
6 CAM SO
7 CS OPD
8 CAM SCK
9 CS CORE
10 GND
11 IRIS OUT
12 N.C
13 V SUB CHK
14 C OUT
15 PG CONT
16 GND
17 N.C
18 Y OUT
CHECK PIN
CS-33
CN852 NON ZIF 1.0 MO
CN851 21P ZIF 0.5
CN801 18P 1.0 0.8
CN510 10P NON ZIF 0.8
CN511 26P NON ZIF 0.8
FP-488 BOARD (FLEXIBLE)
B TO B
FP-571
FP-476
CN901 18P 0.8
W541 0.8
W701 17P 0.8
CD-78
VK-23
EJ-26
FP-553
W702 4P
K OUT 1
K OUT 0
K IN 2
K IN 0
AF ON/OFF
RING-R
FOCUS END SENSOR
M905 FOCUS MOTOR
M906 ZOOM MOTOR
HALL
H
M904 IRIS METER
ZOOM POSITION
LENS UNIT
CN902 5P 1
FP-606
ZOOM SW
ZOOM T1
ZOOM T2
ZOOM W1
ZOOM W2(CAM GND)
ZOOM SWITCH UNIT
W703 8P 0.8
FP-552
JK-83


10
11
12
13
14
15
16
17
18
19
20
MIC
INT. MIC (L)
INT. MIC (R)
CN802 4P 1.5mm
1 MIC L GND
2 INT MIC L
3 INT MIC L
4 MIC L GND
CN801 4P 1.5mm
1 MIC R GND
2 INT MIC R
3 INT MIC R
4 MIC R GND
W802 8P 0.8mm
AUDIO 4.9V 1
MIC L OUT 2
AUDIO GND 3
MIC R OUT 4
MIC MONO/ST 5
SS 4.9V 6
UNREG GND 7
SIRCS OUT 8
FP-493
CN401 8P
1 AUDIO 4.9V
2 MIC L IN
3 AUDIO GND
4 MIC R IN
5 MIC MONO/ST
6 SS 4.9V
7 UNREG GND
8 SIRCS OUT
MA-131
PS-298
VI-113
CN003 0.5mm ZIF
CN001 28P 0.8mm
CN002 40P 0.8mm
FP-607
B TO B
B TO B
CN509 0.5mm ZIF
CN506 0.8mm
CN507 0.8mm
CN505 28P
CN950 28P 0.8mm
EVF 4.9V
EVF GND
VIDEO 4.9V
VIDEO 4.9V
VIDEO GND
VIDEO GND
AUDIO 4.9V
AUDIO 4.9V
AUDIO GND
AUDIO GND
SS 4.9V
SS 4.9V
SS GND
SS GND
HP R OUT
HP L OUT
AUDIO GND (HP)
K IN 0
K IN 5
K OUT 5
K OUT 4
-9V
+15V
CAM 5V
CAM 5V
CAM GND
CAM GND
CAM GND
B TO B
CN504 28P
CN951 28P
D5V
D5V
CAP ERR
CAP VS
CAP VS
DRUM ERR
DRUM VS
DRUM VS
CAP ON
CAM ON
VTR ON
UNREG
UNREG
UNREG GND
UNREG GND
MOTOR UNREG
MOTOR UNREG
MT UNREG GND
MT UNREG GND
VIDEO I/O GND
EC VIDEO OUT
AUDIO R OUT
AUDIO GND (EC)
AUDIO L OUT
AUDIO MIX OUT
N.C.
LANC DC
LANC SIG
B TO B
-476
CN512 40P 0.8
FP-491
W702 4P 0.8mm
K OUT 1
K OUT 0
K IN 2
K IN 0
FP-553
W052 4P 0.8mm
K OUT 1
K OUT 0
K IN 2
K IN 0
W051 9P 0.8mm
SJ-11
W053 6P 0.8mm
SS GND
BUZZER
LI 3V
K OUT 0
K IN 2
K IN 0
FFC-72
CN102 6P NON ZIF
ZB-1
CN101 4P 0.8mm NON ZIF
K OUT 0
K IN 2
K IN 0
SS GND
FFC-73
SW-202
CONTROL SWITCH BLOCK
LIQUID CRYSTAL DISPLAY
RFU DC GND

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ○ : Through hole
- ▨ : Pattern from the side which enables seeing.
  (The other layer's patterns are not indicated.)

* Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μ μF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- □ : panel designation.
- △ : internal component.
- □ : adjustment for repair.*
- — : B+ Line.*
- - - - : B– Line.*
- ⇨ : IN/OUT direction of (+, –) B LINE.*
- Circled numbers refer to waveforms.*

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

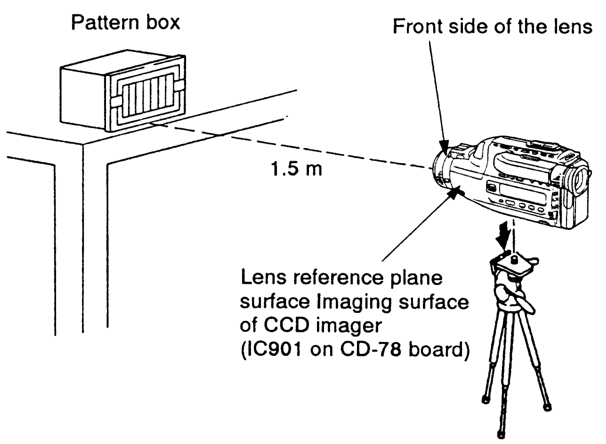
When indicating parts by reference number, please include the board name.

- **Measuring conditions voltage value and waveform.**

(CAMERA, REC mode)

- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points.*
  Readings are taken with a digital multimeter (DC 10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

1. Connection


Pattern box
Front side of the lens
1.5 m
Lens reference plane surface Imaging surface of CCD imager (IC901 on CD-78 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

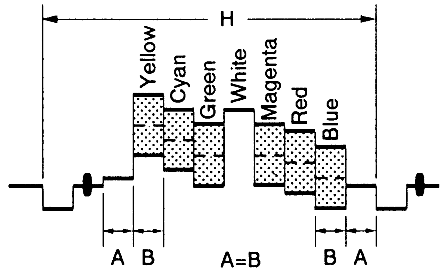

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A

Fig. a (Video output terminal output waveform)

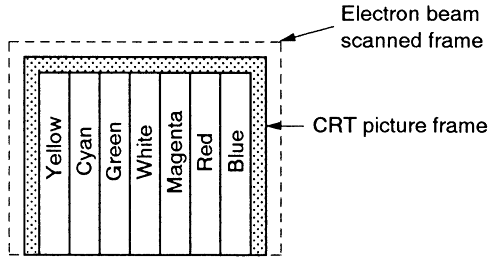

Electron beam scanned frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. b (Picture on monitor TV)

(REC/PB mode)

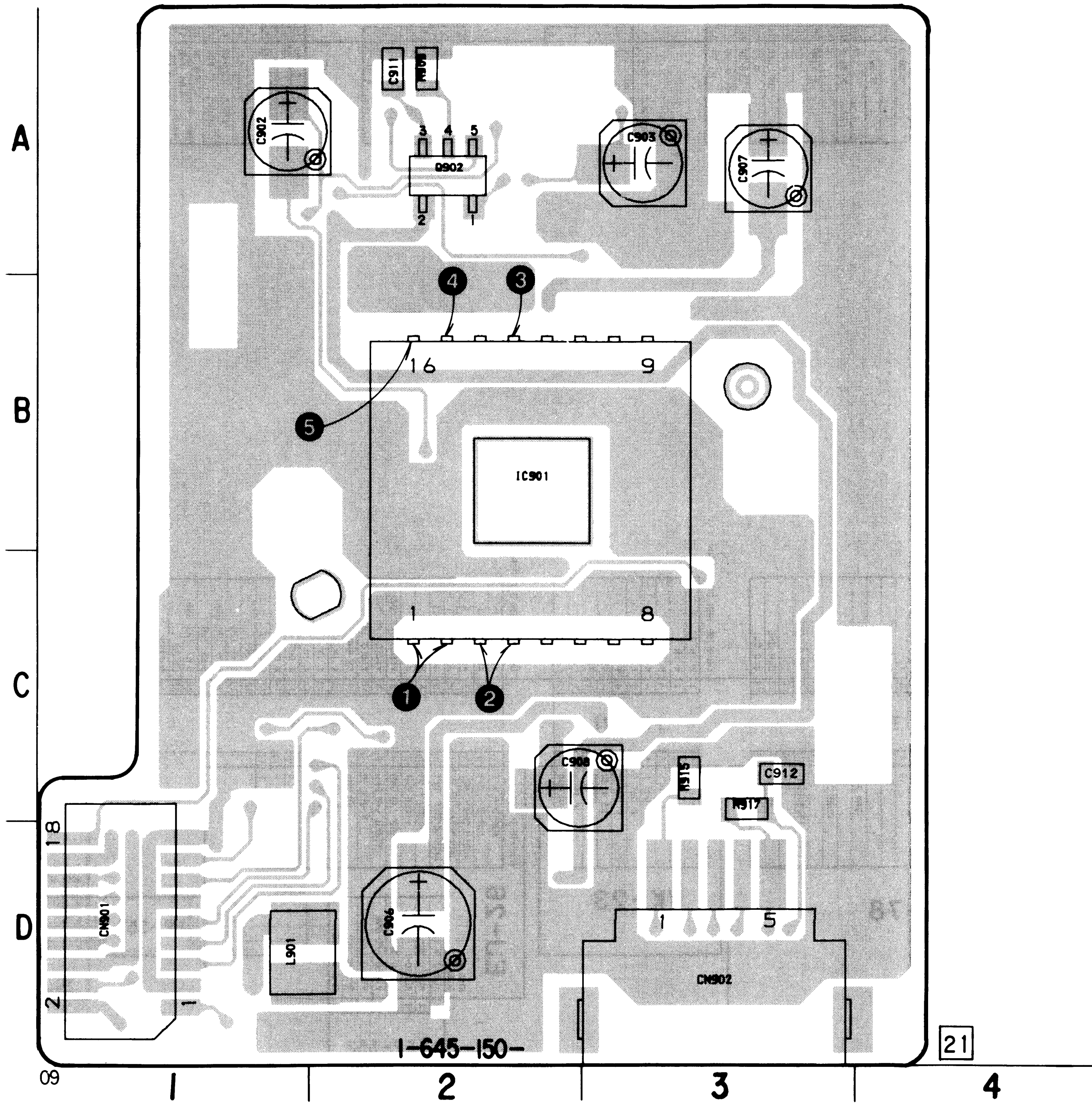
- Voltages are dc between ground and measurement points.*
- Readings are taken with a color-bar signal input.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

*: indicated by the color red.

CD-78 (CCD DRIVE) PRINTED WIRING BOARD

— Ref. No. CD-78 BOARD: 3000 series —

CD-78 BOARD(COMPONENT SIDE)


A
B
C
D
C911
R908
C902
Q902
3
4
5
2
1
C903
C907
④
③
⑤
16
9
IC901
1
8
①
②
C908
R915
C912
R917
18
2
1
CN901
L901
C906
1
5
CN902
1-645-150-
21
09
1
2
3
4

< DIODE >

D901	8-719-820-05	DIODE	1SS181
D903	8-719-820-05	DIODE	1SS181
D904	8-719-800-76	DIODE	1SS226

< TRANSISTOR >

Q901	8-729-010-75	TRANSISTOR	MSC4116-BC
Q901	8-729-230-63	TRANSISTOR	2SC4116-YG
Q902	8-729-402-13	TRANSISTOR	XN1501
Q903	8-729-232-86	TRANSISTOR	2SK1875-BL/V

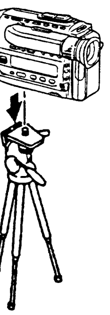
aveform.

t points.*

0MΩ).*

al production

of the lens



of Fig. a and

rm)

m

ne

me

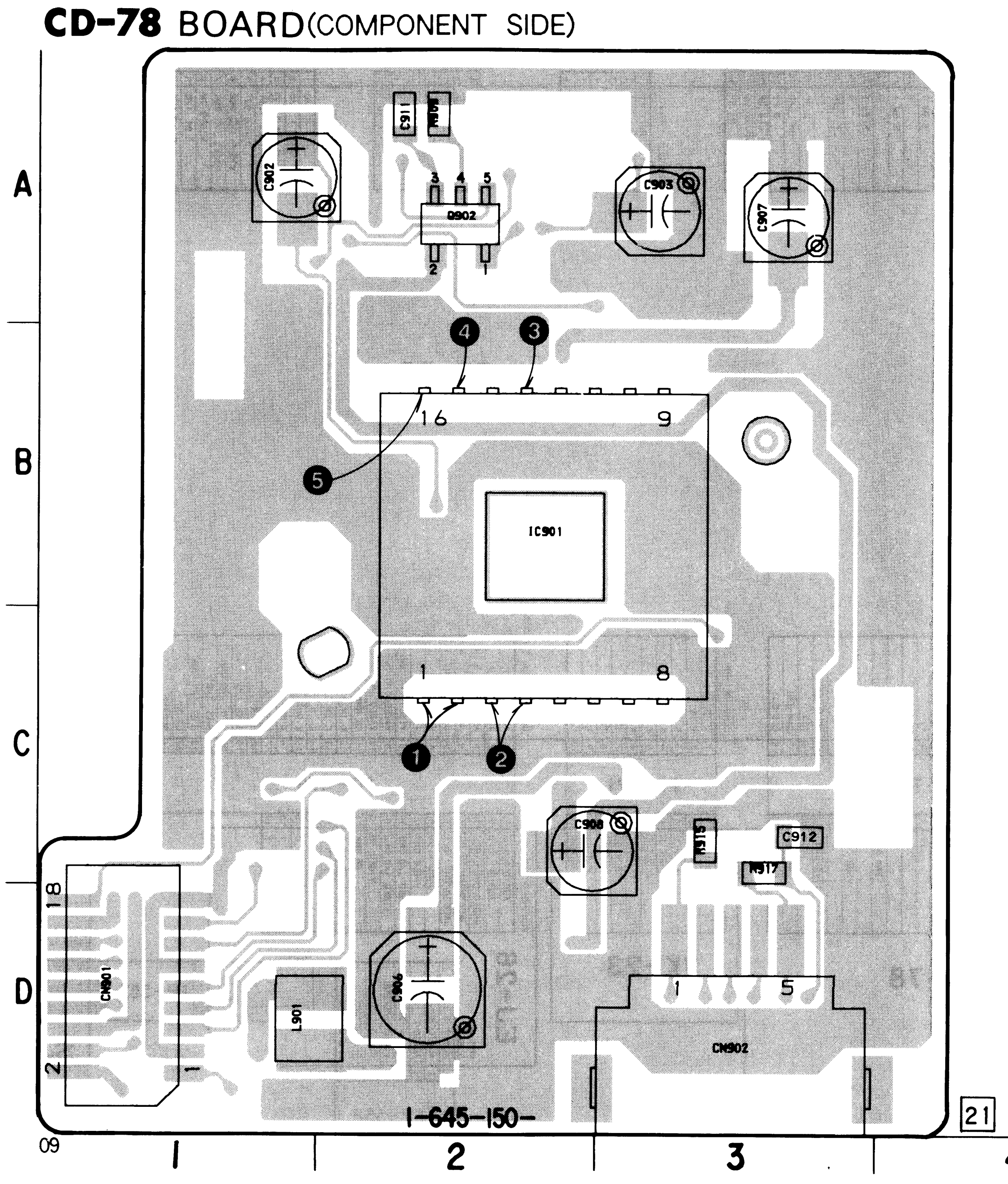
t points.*

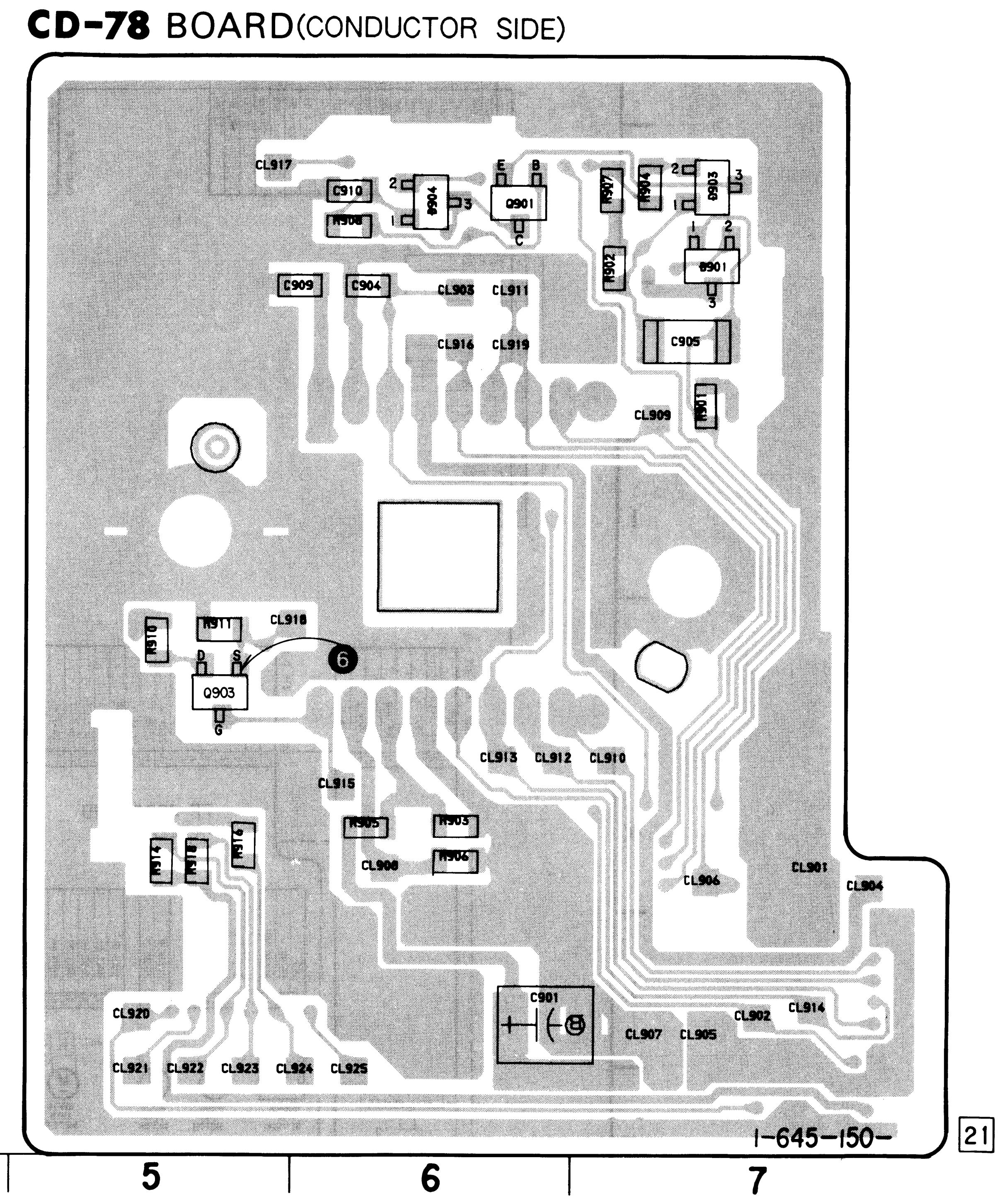
MΩ).*

al production

CD-78 (CCD DRIVE) PRINTED WIRING BOARD

— Ref. No. CD-78 BOARD: 3000 series —


CD-78 BOARD(COMPONENT SIDE)
A
B
C
D
C902
C911
R908
Q902
C903
C907
IC901
16
9
1
8
C906
C912
R915
R917
CN901
L901
C905
CN902
1-645-150-
21
09
1
2
3
4


CD-78 BOARD(CONDUCTOR SIDE)
CL917
C910
R906
D904
Q901
R907
R904
D903
R902
D901
C909
C904
CL903
CL911
CL916
CL919
C905
CL909
R901
R910
R911
CL918
Q903
CL913
CL912
CL910
CL915
R905
R903
R914
R918
R916
CL908
R906
CL906
CL901
CL904
C901
CL920
CL921
CL922
CL923
CL924
CL925
CL907
CL905
CL902
CL914
1-645-150-
21
5
6
7

< DIODE >

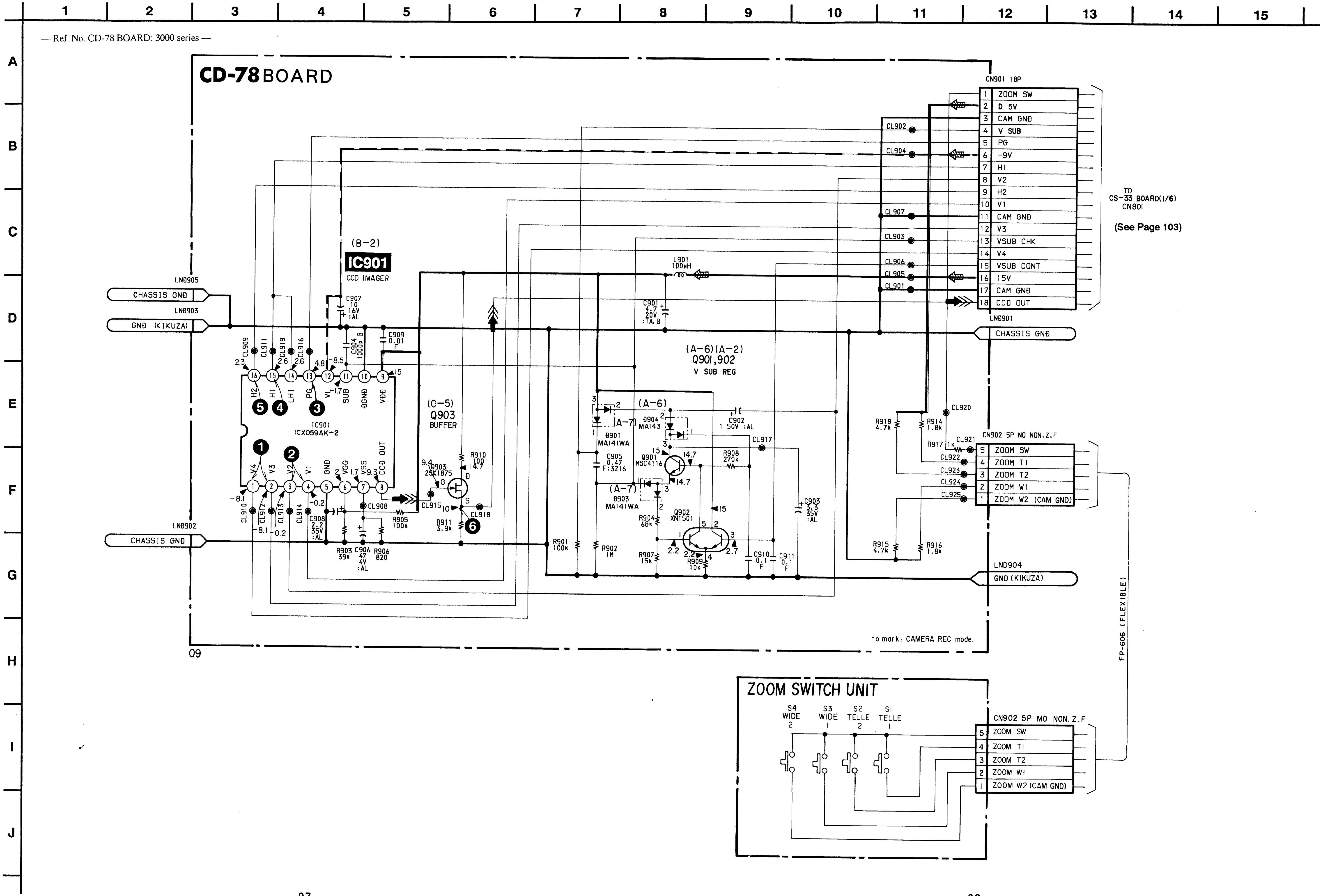
D901	8-719-820-05	DIODE	1SS181
D903	8-719-820-05	DIODE	1SS181
D904	8-719-800-76	DIODE	1SS226

< TRANSISTOR >

Q901	8-729-010-75	TRANSISTOR	MSC4116-BC
Q901	8-729-230-63	TRANSISTOR	2SC4116-YG
Q902	8-729-402-13	TRANSISTOR	XN1501
Q903	8-729-232-86	TRANSISTOR	2SK1875-BL/V

CD-78 (CCD IMAGER) SCHEMATIC DIAGRAM

— Ref. No. CD-78 BOARD: 3000 series —


1
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12
13
14
15
A
B
C
D
E
F
G
H
I
J
CD-78 BOARD
CN901 18P
1 ZOOM SW
2 D 5V
3 CAM GND
4 V SUB
5 PG
6 -9V
7 H1
8 V2
9 H2
10 V1
11 CAM GND
12 V3
13 VSUB CHK
14 V4
15 VSUB CONT
16 15V
17 CAM GND
18 CCD OUT
TO CS-33 BOARD(1/6) CN801
(See Page 103)
CL902
CL904
CL907
CL903
CL906
CL905
CL901
LND901
CHASSIS GND
LND905
CHASSIS GND
LND903
GND (KIKUZA)
LND902
CHASSIS GND
LND904
GND (KIKUZA)
(B-2)
IC901
CCD IMAGER
IC901
ICX059AK-2
C907 10 16V :AL
C904 1000p B
C909 0.01 F
H2
H1
LH1
PG
VL
SUB
DGND
VDD
V4
V3
V2
V1
GND
VGG
VSS
CCD OUT
CL909
CL911
CL919
CL916
CL910
CL912
CL913
CL914
CL908
C908 2.2 35V :AL
R903 39k
C906 47 4V :AL
R906 820
R905 100k
(C-5)
Q903
BUFFER
Q903 2SK1875
R910 100
R911 3.9k
CL915
CL918
L901 100μH
C901 4.7 20V :TA B
(A-6)(A-2)
Q901,902
V SUB REG
(A-6)
D904 MA143
(A-7)
D901 MA141WA
C902 1 50V :AL
CL917
C905 0.47 F:3216
Q901 MSC4116
R908 270k
(A-7)
D903 MA141WA
Q902 XN1501
R904 68k
R907 15k
R909 10k
C903 3.3 35V :AL
C910 0.1 F
C911 0.1 F
R901 100k
R902 1M
R918 4.7k
R914 1.8k
R917 1k
CL920
CL921
CL922
CL923
CL924
CL925
R915 4.7k
R916 1.8k
CN902 5P NO NON.Z.F
5 ZOOM SW
4 ZOOM T1
3 ZOOM T2
2 ZOOM W1
1 ZOOM W2 (CAM GND)
FP-606 (FLEXIBLE)
no mark: CAMERA REC mode.
09
ZOOM SWITCH UNIT
S4 WIDE 2
S3 WIDE 1
S2 TELLE 2
S1 TELLE 1
CN902 5P MO NON.Z.F
5 ZOOM SW
4 ZOOM T1
3 ZOOM T2
2 ZOOM W1
1 ZOOM W2 (CAM GND)
2.3
2.6
2.6
4.8
-8.5
1.7
15
-8.1
-8.1
0.2
-0.2
2
1.7
9.3
9.4
14.7
10
14.7
2.2
2.2
2.7
15
14.7

Note on th

- Some o
  imager (
  The corr
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  The cor
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  for input
- The CC
  CD-78 b
  When re
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- Perform
  imager h
- Handle t
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  Also, pr
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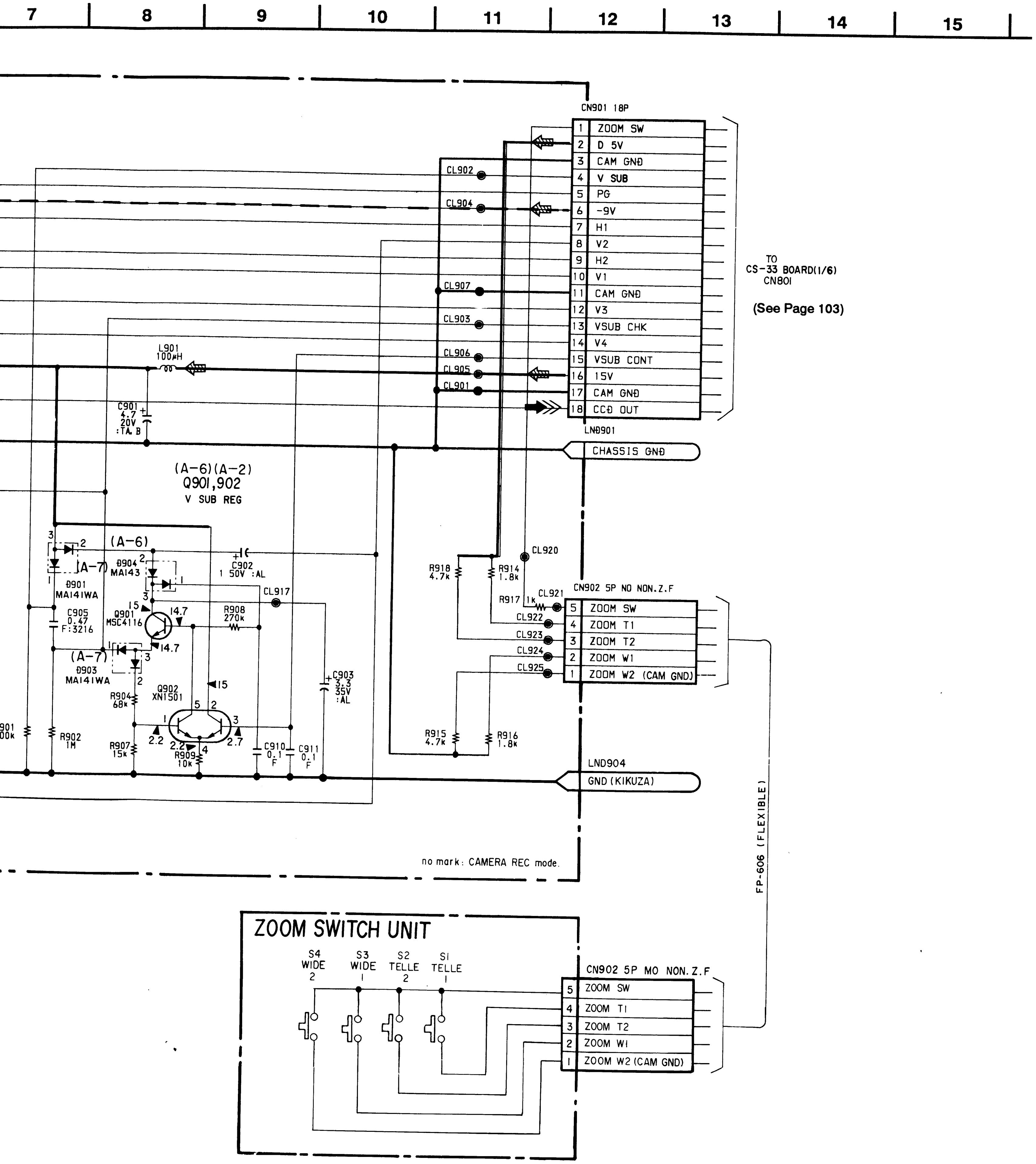
- **SIGNAL P**

	CHR
REC	
PB	


7
8
9
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12
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14
15
CN901 18P
1 ZOOM SW
2 D 5V
3 CAM GND
4 V SUB
5 PG
6 -9V
7 H1
8 V2
9 H2
10 V1
11 CAM GND
12 V3
13 VSUB CHK
14 V4
15 VSUB CONT
16 15V
17 CAM GND
18 CCD OUT
CL902
CL904
CL907
CL903
CL906
CL905
CL901
L901 100µH
C901 4.7 20V :TA B
TO CS-33 BOARD(1/6) CN801
(See Page 103)
LND901
CHASSIS GND
(A-6)(A-2) Q901,902 V SUB REG
(A-6)
(A-7)
D904 MA143
D901 MA141WA
C902 1 50V :AL
Q901 MSC4116
R908 270k
CL917
C905 0.47 F:3216
D903 MA141WA
Q902 XN1501
R904 68k
C903 3.3 35V :AL
R902 1M
R907 15k
R909 10k
C910 0.1 F
C911 0.1 F
14.7
15
2.2
2.7
CL920
R918 4.7k
R914 1.8k
R917 1k
CL921
CN902 5P NO NON.Z.F
5 ZOOM SW
4 ZOOM T1
3 ZOOM T2
2 ZOOM W1
1 ZOOM W2 (CAM GND)
CL922
CL923
CL924
CL925
R915 4.7k
R916 1.8k
LND904
GND (KIKUZA)
FP-606 (FLEXIBLE)
no mark: CAMERA REC mode.
ZOOM SWITCH UNIT
S4 WIDE 2
S3 WIDE 1
S2 TELLE 2
S1 TELLE 1
CN902 5P MO NON.Z.F
5 ZOOM SW
4 ZOOM T1
3 ZOOM T2
2 ZOOM W1
1 ZOOM W2 (CAM GND)

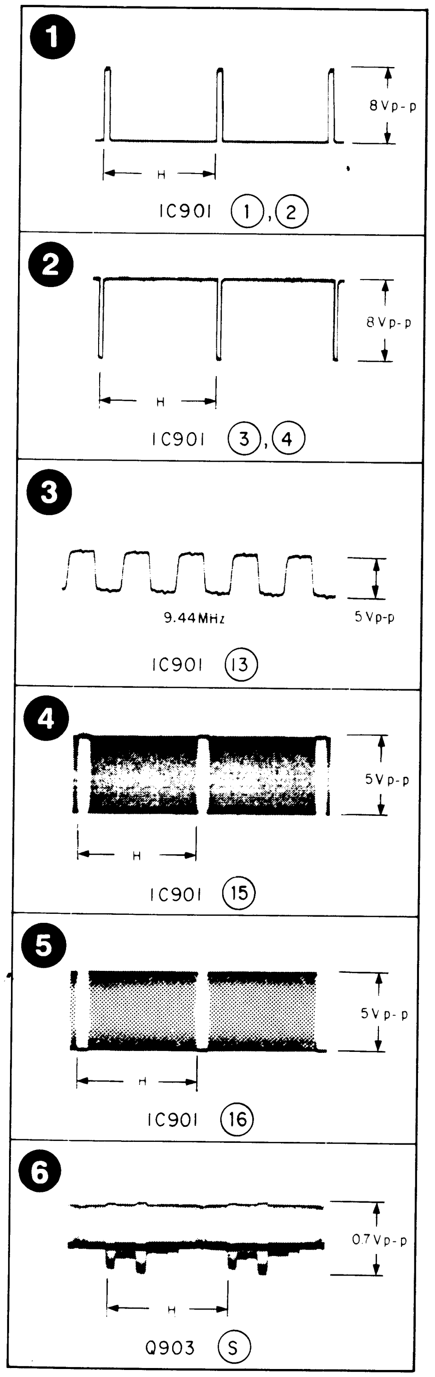
Note on the CCD Imager replacement

- Some of this units require the correction data by the CCD imager (IC901 on CD-78 board), some do not.
  The correction data is input in F page and addresses 1D to 2C of the camera micro processor (IC709 on CS-33 board), and also written on the CCD data label put on the shield case (upper) of the PS-298 board.
  The correction data is not required for the CCD imager supplied for repair. Therefore, when replacing the CCD imager to which the CCD data label is put, remove the CCD data label and input 00 to F page and addresses 1D to 2C of the camera micro processor. Refer to the camera adjustment for input method.
- The CCD imager is not mounted for the already mounted CD-78 board supplied as the repair parts.
  When replacing the CD-78 board, remove the CCD imager from the old board and install on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure.
  Also, prevent the receiving light section from dust attached and strong light.

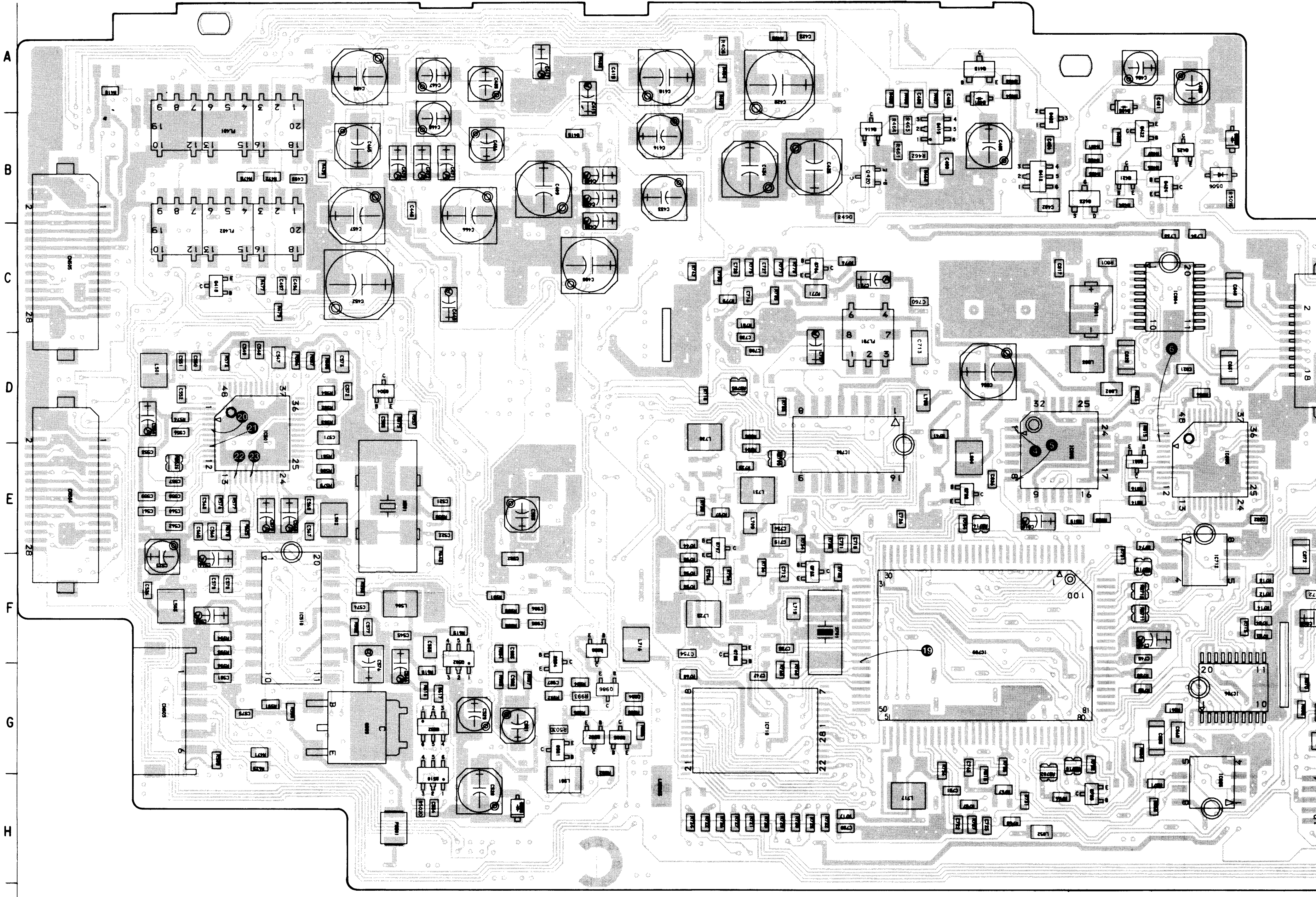
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	
PB				

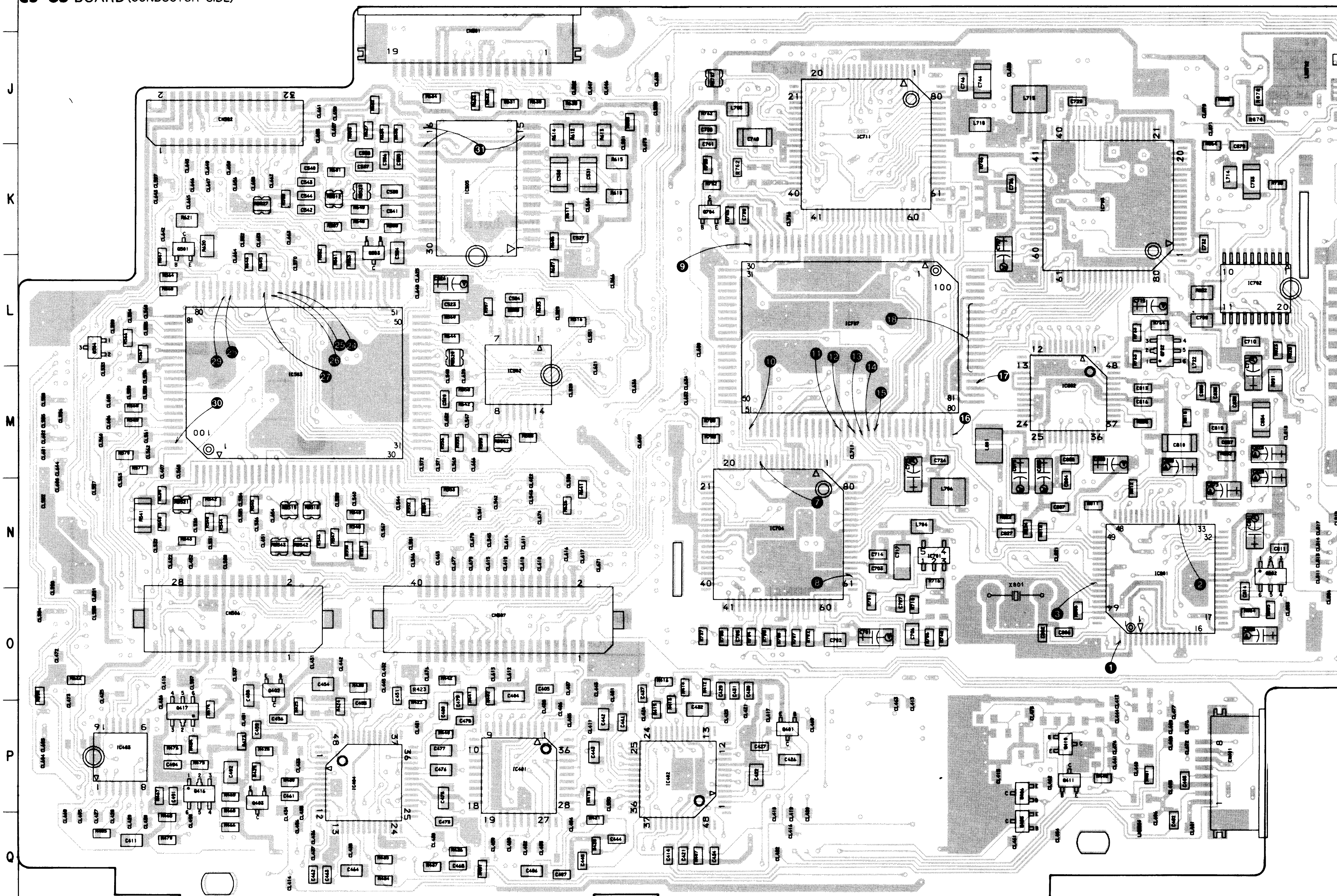
CD-78 BOARD



CS-33 BOARD (COMPONENT SIDE)



CS-33 BOARD (CONDUCTOR SIDE)


J
K
L
M
N
O
P
Q
09
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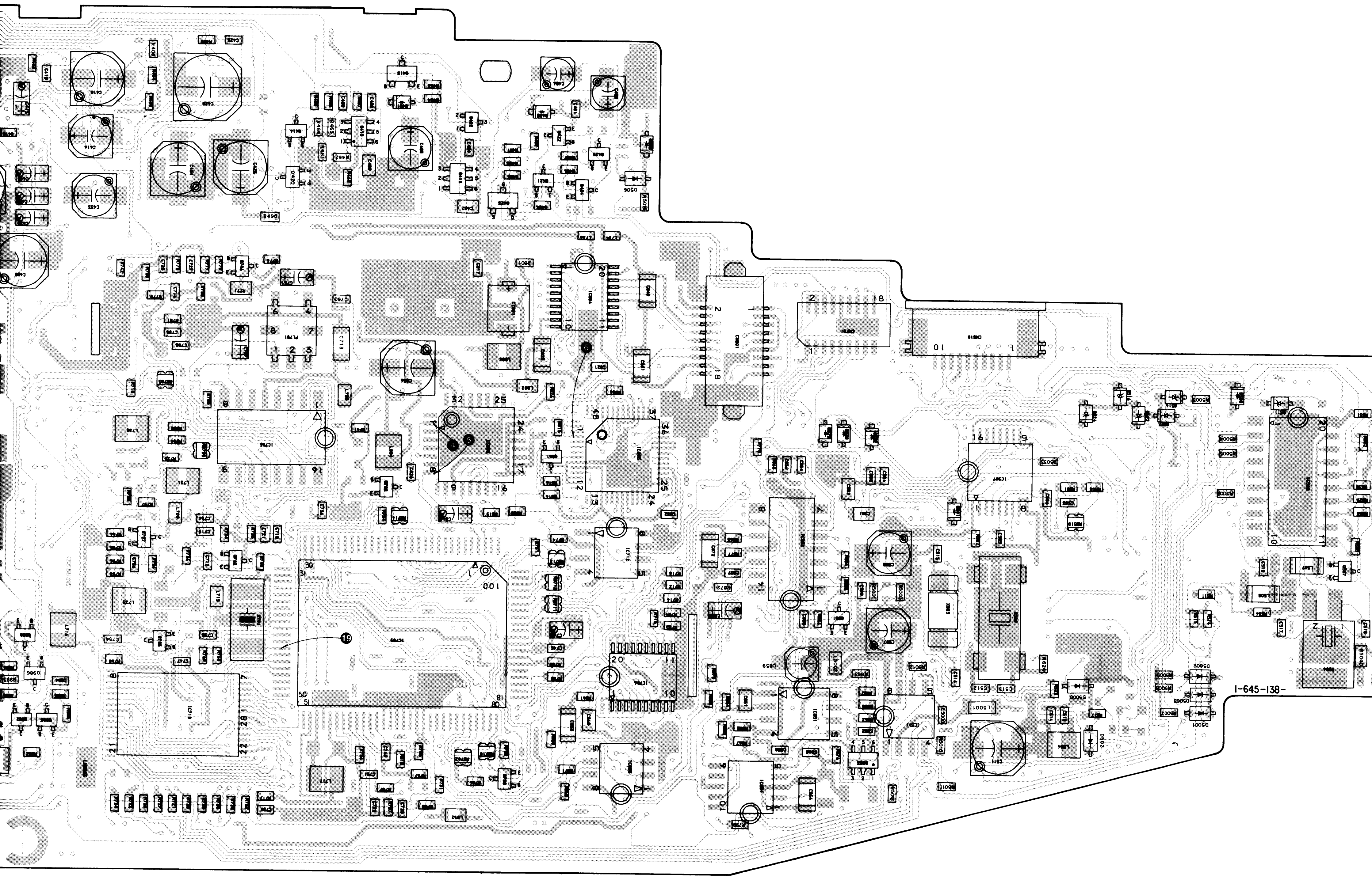
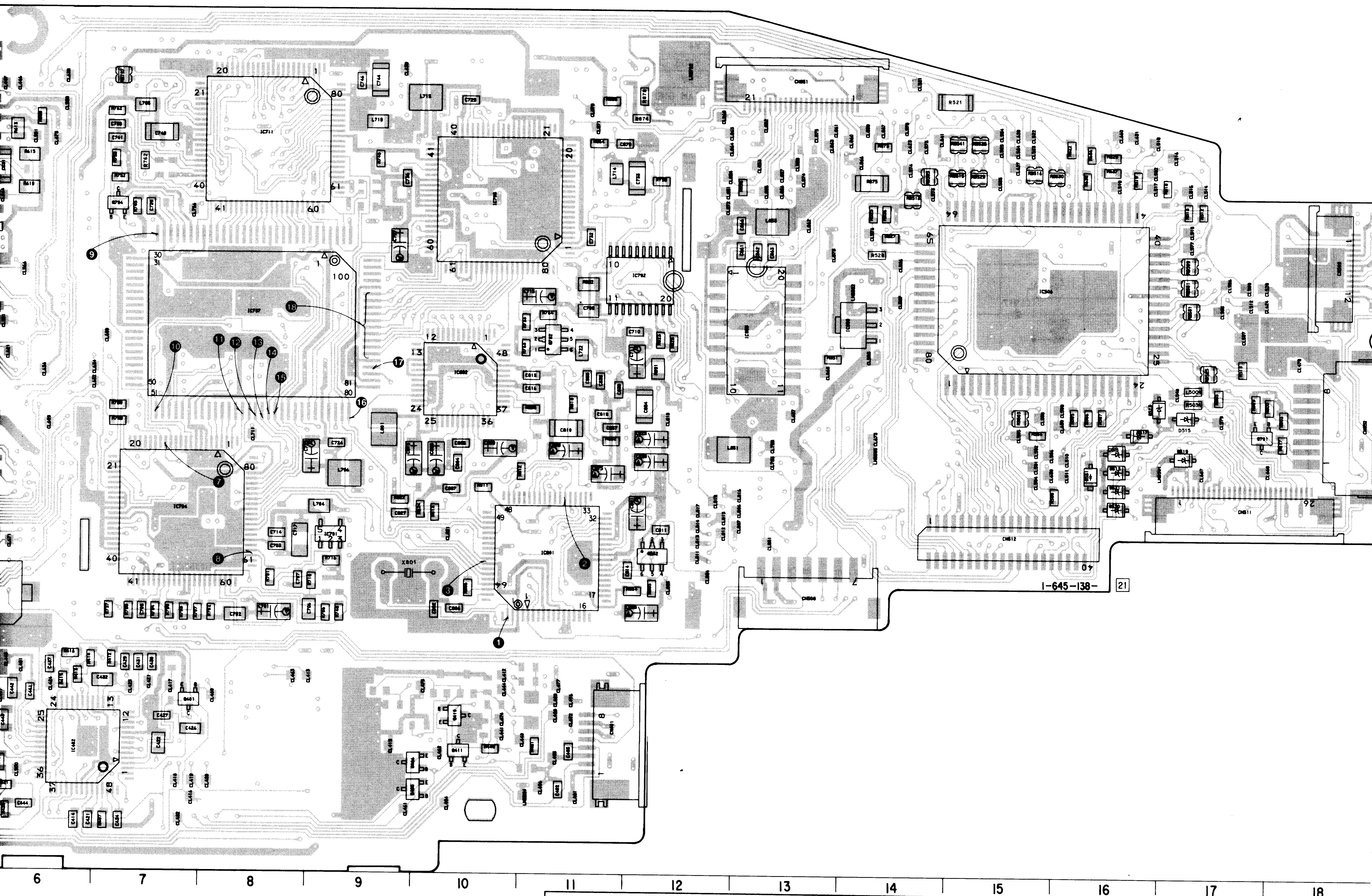
12




1-645-138-
21
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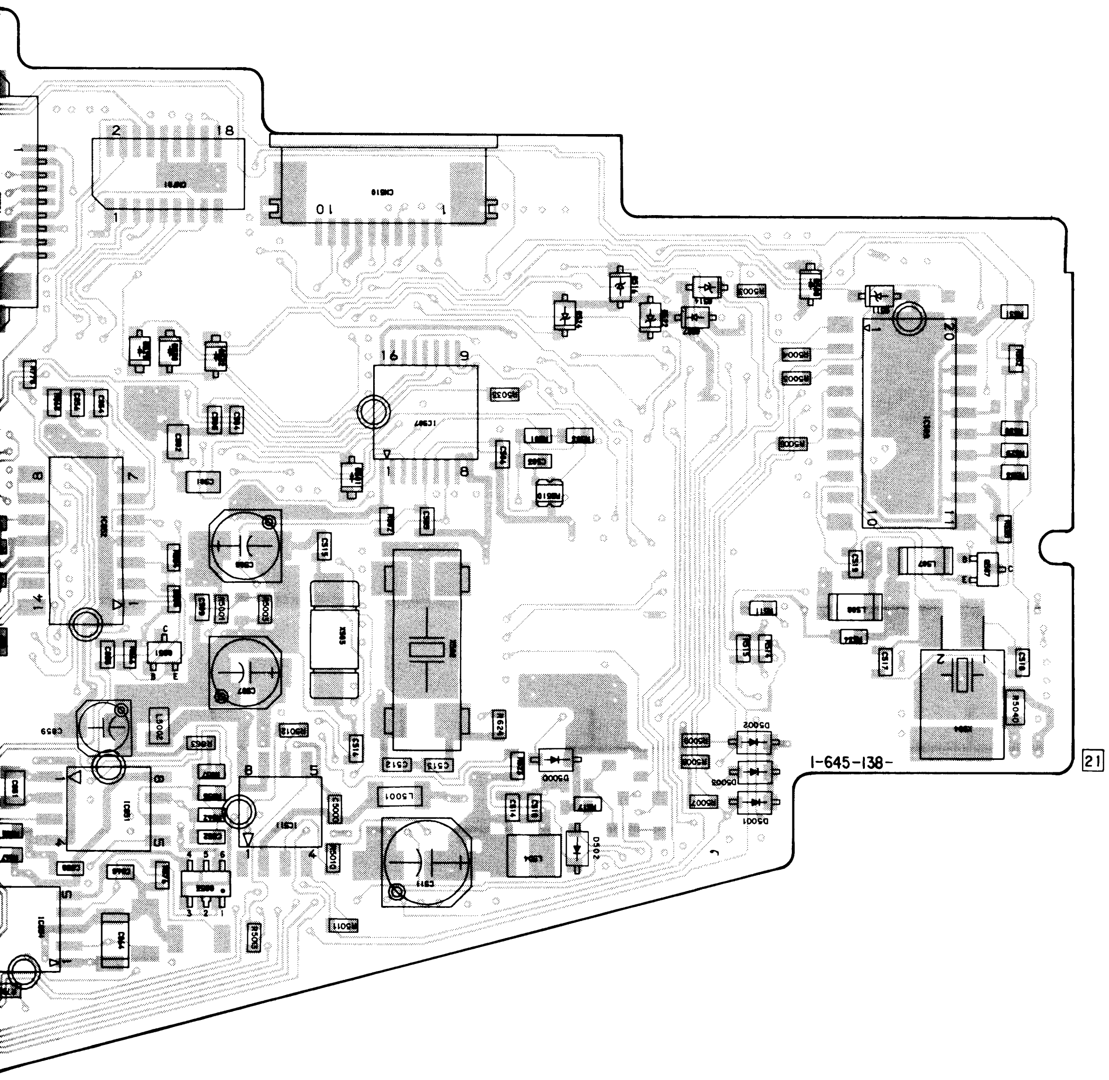
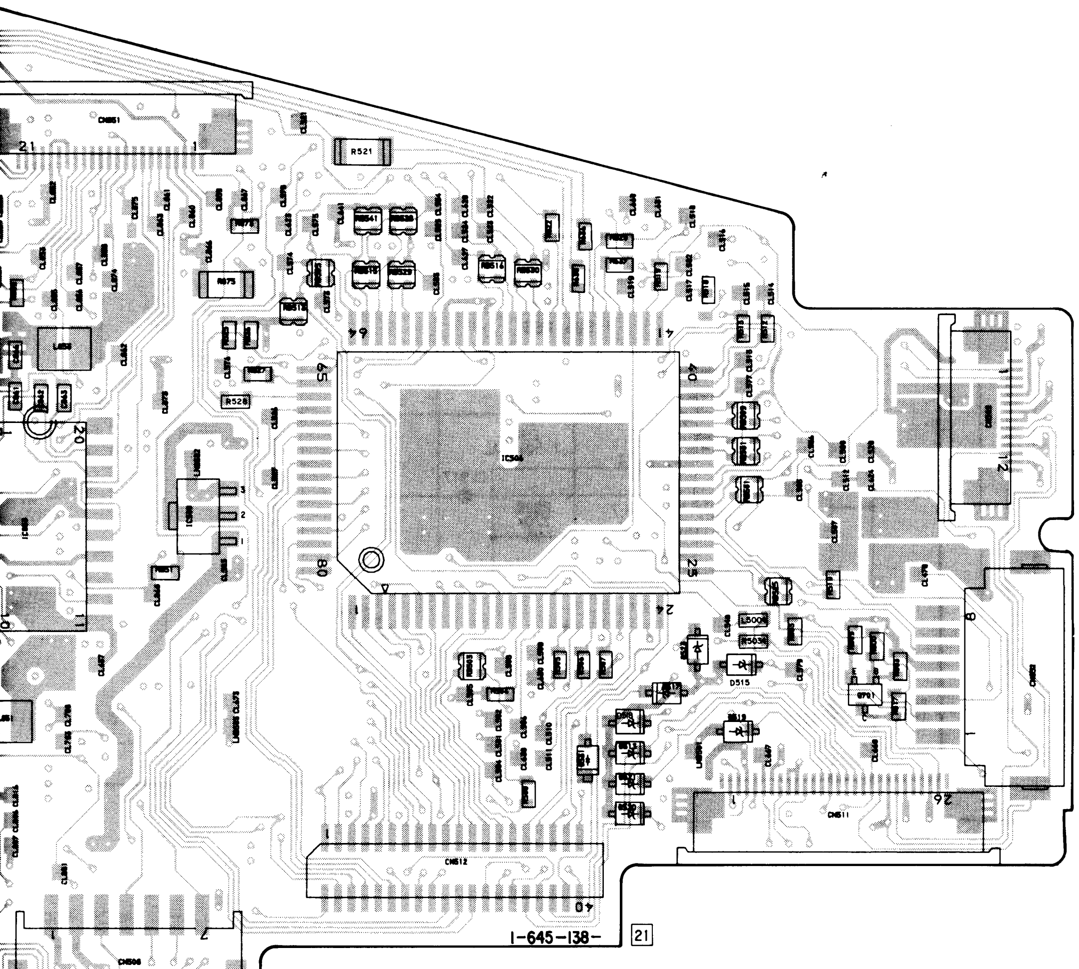
18

CAMERA, SERVO/SYSCON, AUDIO, VIDEO

CAMERA, SERV





< DIODE >

D401	8-719-404-46	DIODE	MA110
D402	8-719-941-86	DIODE	DAN202U
D403	8-719-404-46	DIODE	MA110
D501	8-719-421-27	DIODE	MA728
D502	8-719-404-46	DIODE	MA110
D503	8-719-404-46	DIODE	MA110
D504	8-719-941-86	DIODE	DAN202U
D505	8-719-404-46	DIODE	MA110
D506	8-719-404-46	DIODE	MA110
D507	8-719-404-46	DIODE	MA110
D508	8-719-404-46	DIODE	MA110
D511	8-719-977-34	DIODE	DTZ12
D513	8-719-977-34	DIODE	DTZ12
D514	8-719-977-34	DIODE	DTZ12
D515	8-719-977-34	DIODE	DTZ12
D516	8-719-977-34	DIODE	DTZ12
D517	8-719-977-34	DIODE	DTZ12
D518	8-719-977-34	DIODE	DTZ12
D519	8-719-977-34	DIODE	DTZ12
D520	8-719-977-34	DIODE	DTZ12
D521	8-719-977-34	DIODE	DTZ12
D522	8-719-977-34	DIODE	DTZ12
D523	8-719-977-34	DIODE	DTZ12
D524	8-719-977-34	DIODE	DTZ12
D529	8-719-404-46	DIODE	MA110
D530	8-719-404-46	DIODE	MA110
D531	8-719-404-46	DIODE	MA110
D532	8-719-404-46	DIODE	MA110
D5000	8-719-404-46	DIODE	MA110
D5001	8-719-404-46	DIODE	MA110
D5002	8-719-404-46	DIODE	MA110
D5003	8-719-404-46	DIODE	MA110

< IC >

IC401	8-759-823-21	IC	CXA1536QQ
IC402	8-759-823-19	IC	CXA1488RR
IC403	8-759-055-82	IC	M62353GP
IC404	8-759-823-19	IC	CXA1488RR
IC501	8-759-058-96	IC	TB1206F
IC502	8-759-999-02	IC	TL1596CDB
IC503	8-752-842-05	IC	CXP80624A-016Q
IC505	8-759-990-55	IC	CXA8006M
IC506	8-759-167-61	IC	uPD75316GF-355-3B9
IC507	8-759-511-22	IC	CXA1448N
IC508	8-759-512-69	IC	S-81350HG-KD
IC509	8-759-145-63	IC	uPD7564G-540
IC510	8-759-039-01	IC	MPC1720M
IC511	8-759-073-67	IC	BR9021AF-E2
IC701	8-759-031-58	IC	SC7SU04F
IC702	8-759-635-27	IC	M62352GP
IC703	8-759-094-47	IC	uPD6456GS-630
IC704	8-752-358-10	IC	CXD2101BR
IC705	8-759-063-18	IC	27C512-RCP-V1.0
IC706	8-752-355-56	IC	CXD2104BN
IC707	8-752-347-93	IC	CXD2100AQ
IC709	8-752-836-44	IC	CXP80624-419Q
IC710	8-759-099-89	IC	MS6264BLL-15VC-ER
IC711	8-759-518-81	IC	CXD2112R
IC712	8-759-044-78	IC	AK6420F
IC801	8-752-341-09	IC	CXD1265R
IC802	8-752-056-39	IC	CXA1507BR
IC803	8-752-053-26	IC	CXA1399Q
IC804	8-752-347-34	IC	CXD1250AN
IC805	8-752-054-61	IC	CXA1390AR
IC851	8-759-701-24	IC	NJM3414M
IC852	8-759-998-96	IC	LM324D
IC853	8-759-038-81	IC	MPC1724M
IC854	8-759-823-51	IC	LB1830M
IC855	8-759-998-98	IC	LM358D

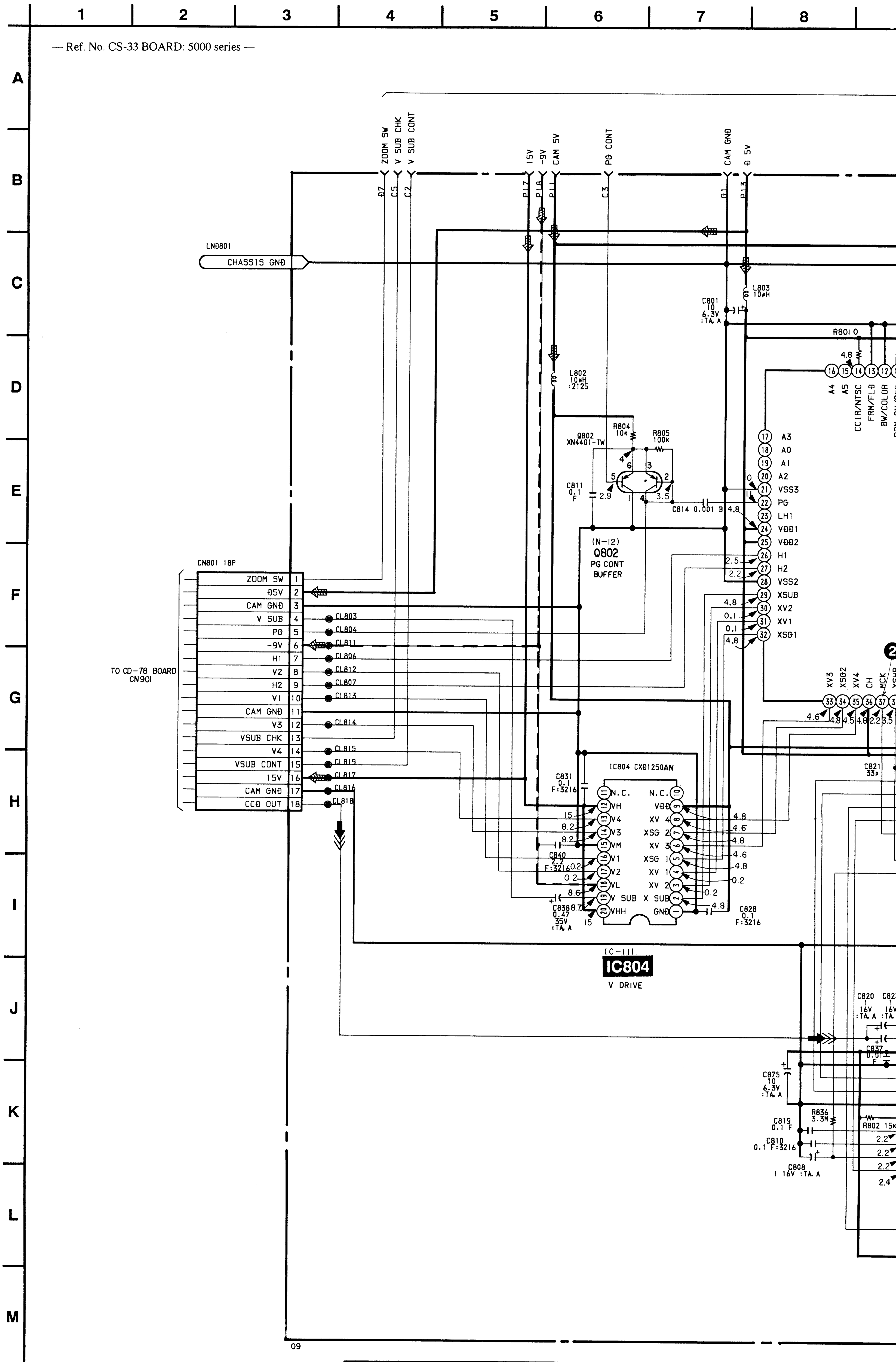
< TRANSISTOR >

Q401	8-729-402-42	TRANSISTOR	UN5213
Q402	8-729-402-42	TRANSISTOR	UN5213
Q403	8-729-010-60	TRANSISTOR	MSA1586-BC
Q405	8-729-420-50	TRANSISTOR	UN5215
Q406	8-729-420-50	TRANSISTOR	UN5215
Q410	8-729-420-50	TRANSISTOR	UN5215
Q411	8-729-420-50	TRANSISTOR	UN5215
Q412	8-729-907-39	TRANSISTOR	IMD2
Q413	8-729-216-22	TRANSISTOR	2SA1162
Q414	8-729-402-42	TRANSISTOR	UN5213
Q415	8-729-402-81	TRANSISTOR	XN4501
Q416	8-729-402-81	TRANSISTOR	XN4501
Q417	8-729-402-81	TRANSISTOR	XN4501
Q418	8-729-230-63	TRANSISTOR	2SC4116-YG
Q421	8-729-403-35	TRANSISTOR	UN5113
Q422	8-729-402-42	TRANSISTOR	UN5213
Q423	8-729-109-44	TRANSISTOR	2SK94
Q424	8-729-230-63	TRANSISTOR	2SC4116-YG
Q425	8-729-230-63	TRANSISTOR	2SC4116-YG
Q501	8-729-015-76	TRANSISTOR	UN5211-TX
Q502	8-729-403-27	TRANSISTOR	XN4401
Q507	8-729-403-35	TRANSISTOR	UN5113
Q509	8-729-822-84	TRANSISTOR	2SB1202FAST
Q510	8-729-402-81	TRANSISTOR	XN4501
Q532	8-729-402-81	TRANSISTOR	XN4501
Q701	8-729-230-63	TRANSISTOR	2SC4116-YG
Q702	8-729-402-84	TRANSISTOR	XN4601
Q703	8-729-010-60	TRANSISTOR	MSA1586-BC
Q704	8-729-010-60	TRANSISTOR	MSA1586-BC
Q705	8-729-402-42	TRANSISTOR	UN5213
Q706	8-729-230-63	TRANSISTOR	2SC4116-YG
Q707	8-729-230-63	TRANSISTOR	2SC4116-YG
Q708	8-729-015-74	TRANSISTOR	UN5111-TX
Q709	8-729-402-45	TRANSISTOR	UN5212
Q801	8-729-230-63	TRANSISTOR	2SC4116-YG
Q802	8-729-403-27	TRANSISTOR	XN4401
Q851	8-729-230-63	TRANSISTOR	2SC4116-YG
Q853	8-729-403-27	TRANSISTOR	XN4401
Q982	8-729-230-63	TRANSISTOR	2SC4116-YG
Q983	8-729-403-35	TRANSISTOR	UN5113
Q984	8-729-230-63	TRANSISTOR	2SC4116-YG
Q986	8-729-402-42	TRANSISTOR	UN5213
Q988	8-729-402-42	TRANSISTOR	UN5213

CS-33 (CAMERA) SCHEMATIC DIAGRAM

• Refer to page 100 for Printed Wiring Board.

— Ref. No. CS-33 BOARD: 5000 series —


1
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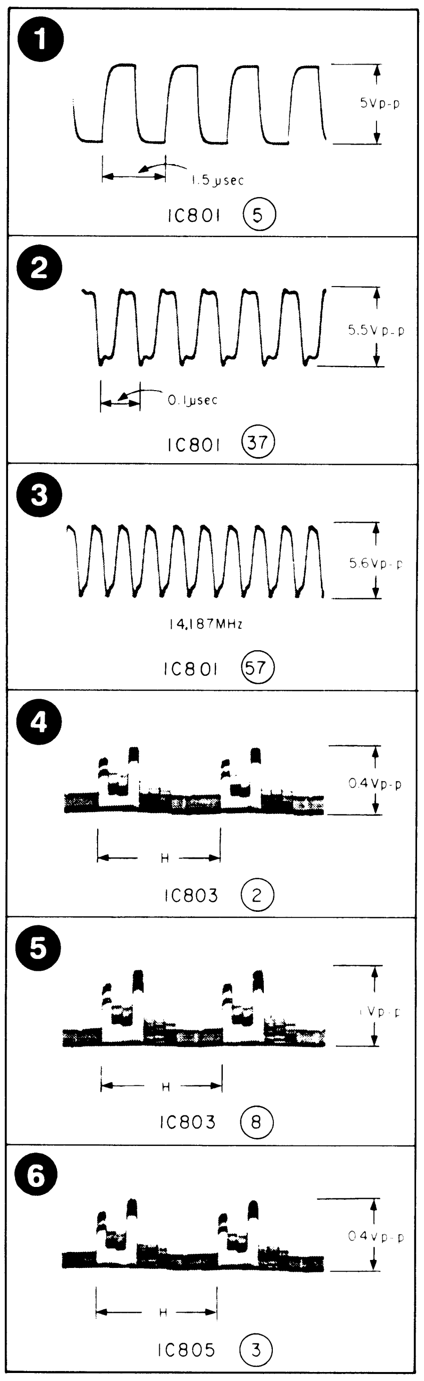
M
LND801
CHASSIS GND
ZOOM SW
V SUB CHK
V SUB CONT
15V
-9V
CAM 5V
PG CONT
CAM GND
D 5V
L803 10µH
C801 10 6.3V :TA A
R801 0
L802 10µH :2125
R804 10k
R805 100k
Q802 XN4401-TW
C811 0.1 F
C814 0.001 B
(N-12)
Q802
PG CONT BUFFER
CN801 18P
ZOOM SW
D5V
CAM GND
V SUB
PG
-9V
H1
H2
V2
V1
CAM GND
V3
VSUB CHK
V4
VSUB CONT
15V
CAM GND
CCD OUT
TO CD-78 BOARD CN901
A3
A0
A1
A2
VSS3
PG
LH1
VDD1
VDD2
H1
H2
VSS2
XSUB
XV2
XV1
XSG1
A4
A5
CCIR/NTSC
FRM/FLD
BW/COLOR
XV3
XSG2
XV4
CH
MCK
IC804 CX01250AN
C831 0.1 F:3216
C840 2.2 F:3216
C838 0.47 35V :TA A
C828 0.1 F:3216
(C-11)
IC804
V DRIVE
C821 33p
C820 1 16V :TA A
C875 10 6.3V :TA A
C832 0.01 F
R836 3.3M
R802 15k
C819 0.1 F
C810 0.1 F:3216
C808 1 16V :TA A

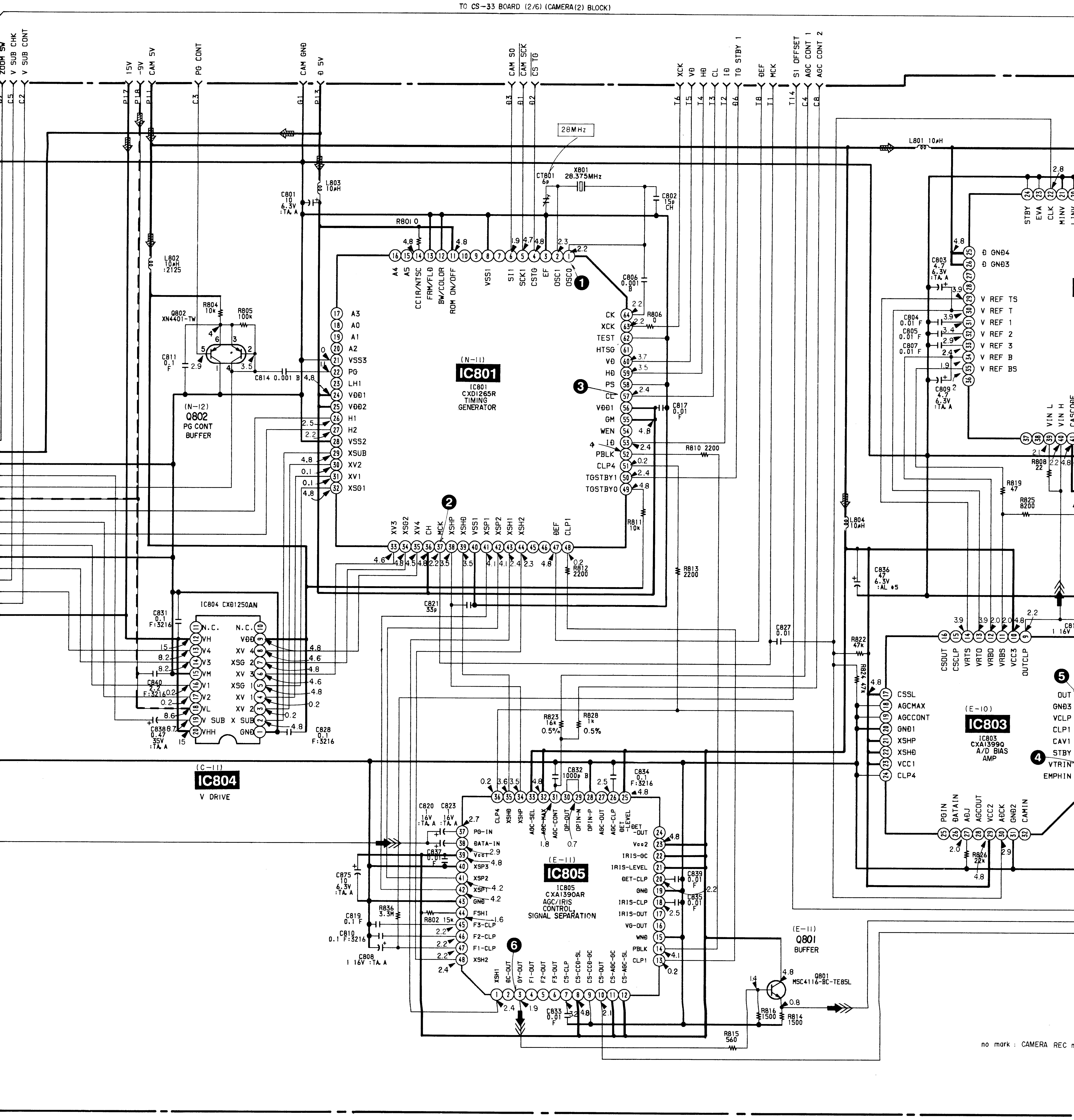
CS-33 BOARD (1/6)



efer to page 100 for Printed Wiring Board.

4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15

(See Page 106, 107)

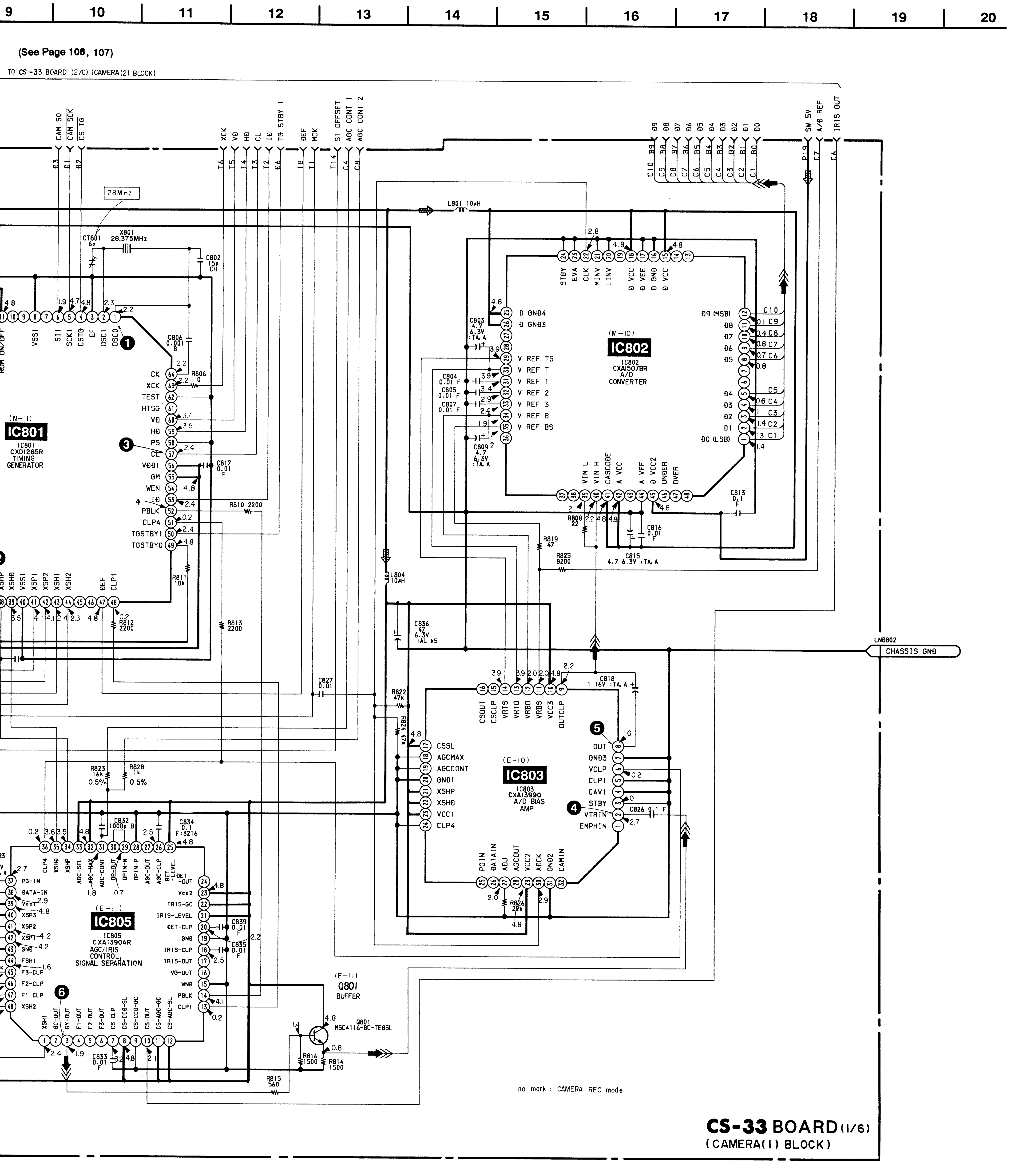


TO CS-33 BOARD (2/6) (CAMERA(2) BLOCK)
ZOOM 5V
V SUB CHK
V SUB CONT
15V
-9V
CAM 5V
PG CONT
CAM GND
D 5V
CAM SO
CAM SCK
CS TG
XCK
VD
HD
CL
TG
TG STBY 1
DEF
MCK
S1 OFFSET
AGC CONT 1
AGC CONT 2
28MHz
X801 28.375MHz
L801 10μH
L802 10μH
L803 10μH
L804 10μH
(N-11)
IC801
IC801 CXD1265R TIMING GENERATOR
(N-12)
Q802
PG CONT BUFFER
Q802 XN4401-TW
IC804 CXD1250AN
(C-11)
IC804
V DRIVE
(E-10)
IC803
IC803 CXA1399Q A/D BIAS AMP
(E-11)
IC805
IC805 CXA1390AR AGC/IRIS CONTROL, SIGNAL SEPARATION
(E-11)
Q801
BUFFER
Q801 MSC4116-BC-TE85L
no mark : CAMERA REC m

CAMERA   CAMERA

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡>>	
PB				



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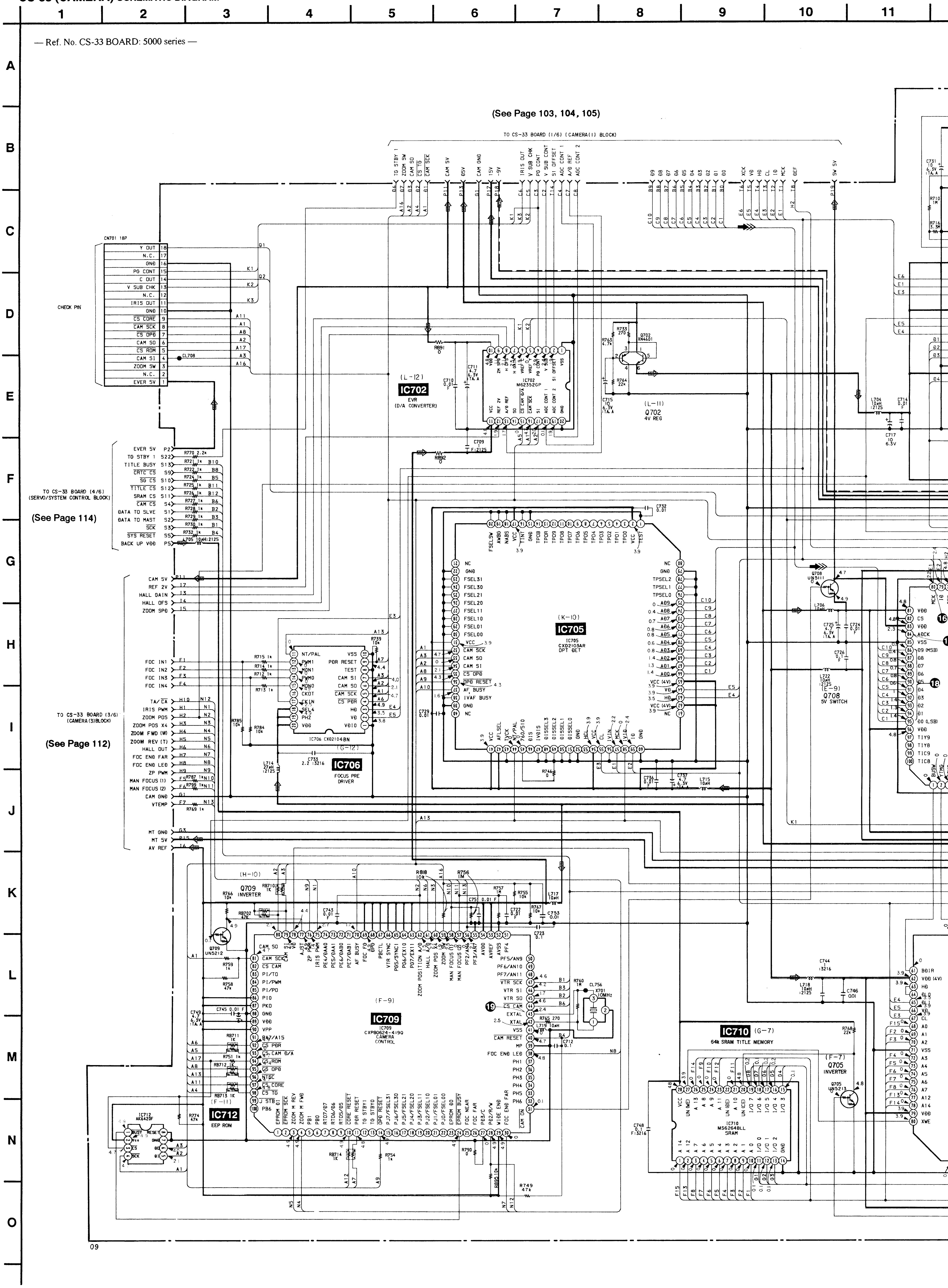
(See Page 106, 107)
TO CS-33 BOARD (2/6) (CAMERA(2) BLOCK)
CAM SO
CAM SCK
CS TG
XCK
VD
HD
CL
ID
TG STBY 1
DEF
MCK
S1 OFFSET
AGC CONT 1
AGC CONT 2
SW 5V
A/D REF
IRIS OUT
28MHz
X801 28.375MHz
CT801 6p
C802 15p CH
L801 10μH
(N-11)
IC801
CXD1265R
TIMING GENERATOR
(M-10)
IC802
CXA1507BR
A/D CONVERTER
(E-10)
IC803
CXA1399Q
A/D BIAS AMP
(E-11)
IC805
CXA1390AR
AGC/IRIS CONTROL, SIGNAL SEPARATION
(E-11)
Q801
BUFFER
Q801 MSC4116-BC-TE85L
L804 10μH
LND802
CHASSIS GND
no mark : CAMERA REC mode

CS-33 BOARD (1/6)
(CAMERA(1) BLOCK)

CS-33 (CAMERA) SCHEMATIC DIAGRAM

- Refer to page 100 for Printed Wiring Board.

— Ref. No. CS-33 BOARD: 5000 series —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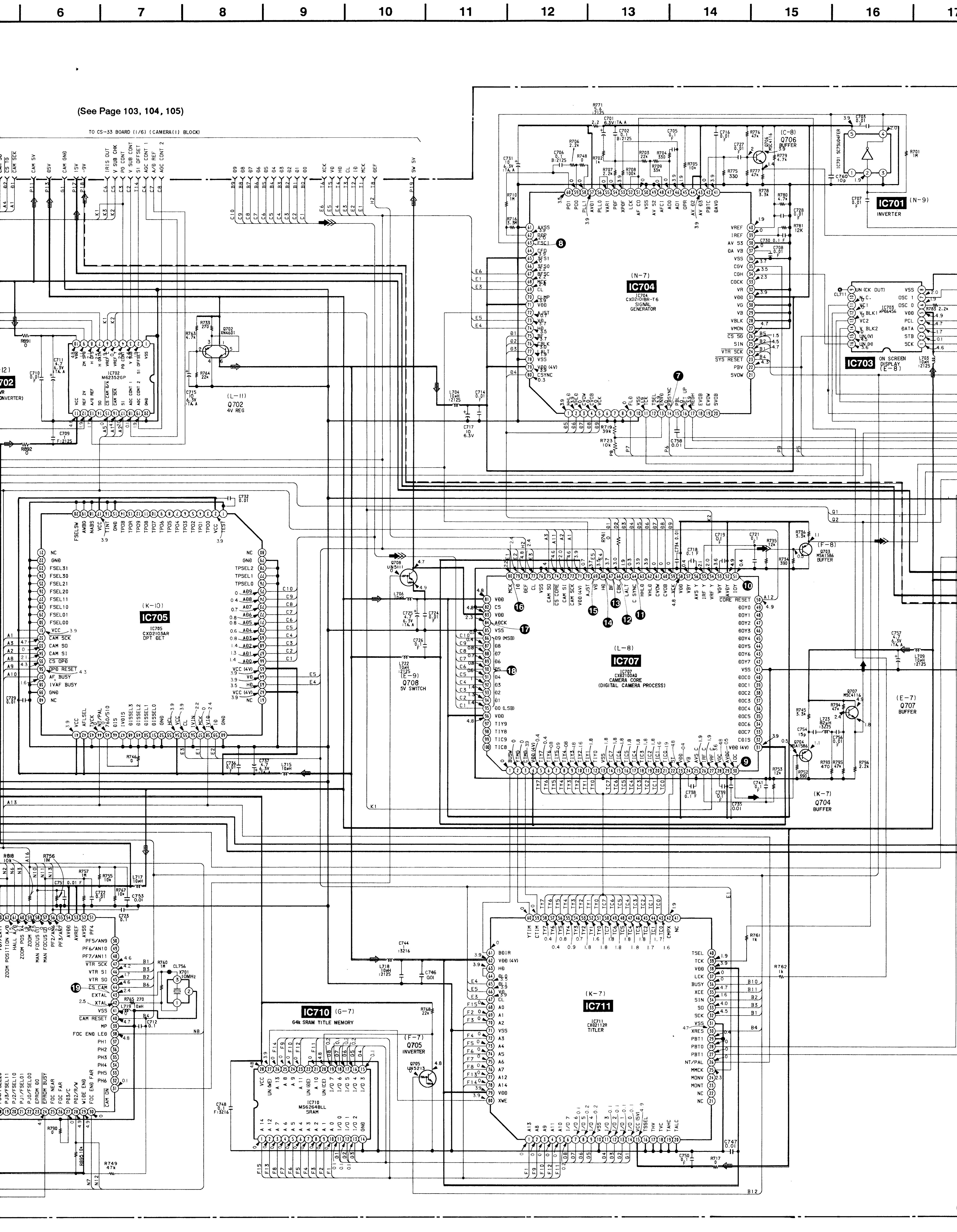
M
N
O
(See Page 103, 104, 105)
TO CS-33 BOARD (1/6) (CAMERA(1) BLOCK)
CN701 18P
CHECK PIN
Y OUT
N.C.
GND
PG CONT
C OUT
V SUB CHK
IRIS OUT
CS CORE
CAM SCK
CS OPD
CAM SO
CS ROM
CAM SI
ZOOM SW
EVER 5V
CL708
TO CS-33 BOARD (4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
TO CS-33 BOARD (3/6) (CAMERA(3)BLOCK)
(See Page 112)
IC702
EVR (D/A CONVERTER)
IC702 M62352GP
Q702
4V REG
Q702 XN4601
IC705
IC705 CXD2103AR OPT DET
(K-10)
IC706
FOCUS PRE DRIVER
IC706 CX02104BN
(G-12)
Q708
5V SWITCH
Q708 UN5111
(E-9)
Q709
INVERTER
Q709 UN5212
(H-10)
IC709
IC709 CXP80624-419Q CAMERA CONTROL
(F-9)
IC712
EEP ROM
IC712 AK6420F
(F-11)
IC710
64k SRAM TITLE MEMORY
IC710 MS6264BLL SRAM
(G-7)
Q705
INVERTER
Q705 UN5213
(F-7)
X701 10MHz
09



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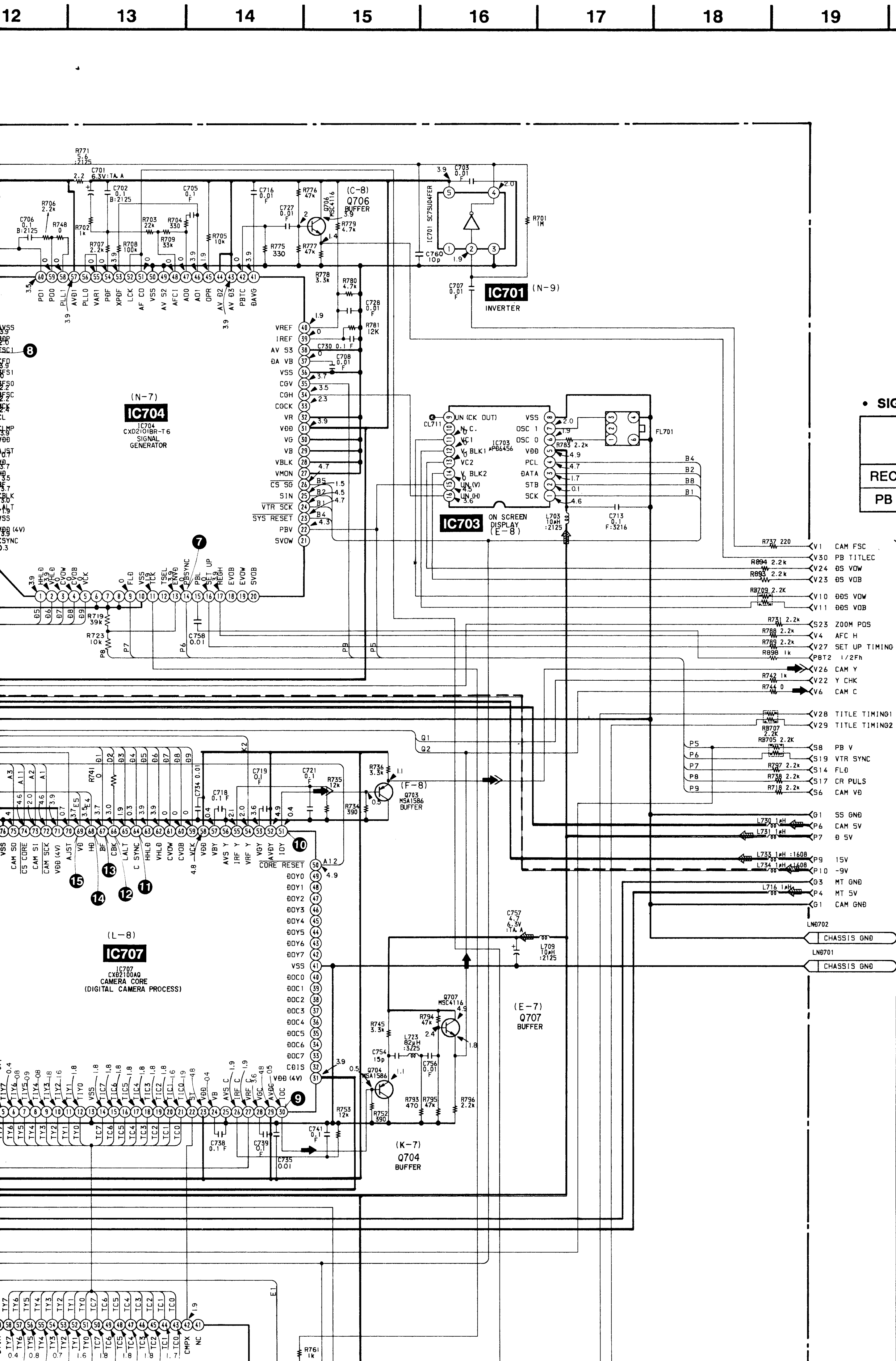
16
(See Page 103, 104, 105)
TO CS-33 BOARD (1/6) (CAMERA(1) BLOCK)
IC704
CXD2101BR-T6
SIGNAL GENERATOR
(N-7)
IC701
INVERTER
(N-9)
IC703
ON SCREEN DISPLAY
(E-8)
Q706
BUFFER
(C-8)
IC702
M62352GP
Q702
4V REG
(L-11)
IC705
CXD2103AR
OPT DET
(K-10)
IC707
CXD2100AQ
CAMERA CORE
(DIGITAL CAMERA PROCESS)
(L-8)
Q708
5V SWITCH
(E-9)
Q703
BUFFER
(F-8)
Q707
BUFFER
(E-7)
Q704
BUFFER
(K-7)
IC711
CXD2112R
TITLER
(K-7)
IC710
64k SRAM TITLE MEMORY
MS6264BLL
(G-7)
Q705
INVERTER
(F-7)
X701
10MHz


12
13
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19
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IC701
(N-9)
INVERTER
IC701 SC7SU04FER
Q706
(C-8)
BUFFER
(N-7)
IC704
IC704 CXD2101BR-T6
SIGNAL GENERATOR
IC703
IC703 μPD6456
ON SCREEN DISPLAY
(E-8)
FL701
Q703
(F-8)
MSA1586
BUFFER
(L-8)
IC707
IC707 CXD2100AQ
CAMERA CORE
(DIGITAL CAMERA PROCESS)
Q707
(E-7)
MSC4116
BUFFER
Q704
(K-7)
MSA1586
BUFFER
(K-7)
IC711
IC711 CX02112R
TITLER
R737 220
V1 CAM FSC
V30 PB TITLEC
R894 2.2k
V24 ÐS VÐW
R893 2.2k
V23 ÐS VÐB
RB709 2.2K
V10 ÐÐS VÐW
V11 ÐÐS VÐB
R731 2.2k
S23 ZOOM POS
R788 2.2k
V4 AFC H
R789 2.2k
V27 SET UP TIMING
R898 1k
PBT2 1/2Fh
V26 CAM Y
R742 1k
V22 Y CHK
R744 0
V6 CAM C
V28 TITLE TIMING1
V29 TITLE TIMING2
RB707 2.2K
RB705 2.2K
S8 PB V
S19 VTR SYNC
R797 2.2k
S14 FLÐ
R738 2.2k
S17 CR PULS
R718 2.2k
S6 CAM VÐ
G1 SS GNÐ
L730 1μH
P6 CAM 5V
L731 1μH
P7 Ð 5V
L733 1μH :1608
P9 15V
L734 1μH :1608
P10 -9V
G3 MT GNÐ
L716 1μH
P4 MT 5V
G1 CAM GNÐ
LN0702
CHASSIS GNÐ
LN0701
CHASSIS GNÐ
TO CS-33 BOARD (4/6)
(SERVO/SYSTEM CONTROL BLOCK)

- **SIGNAL PATH**

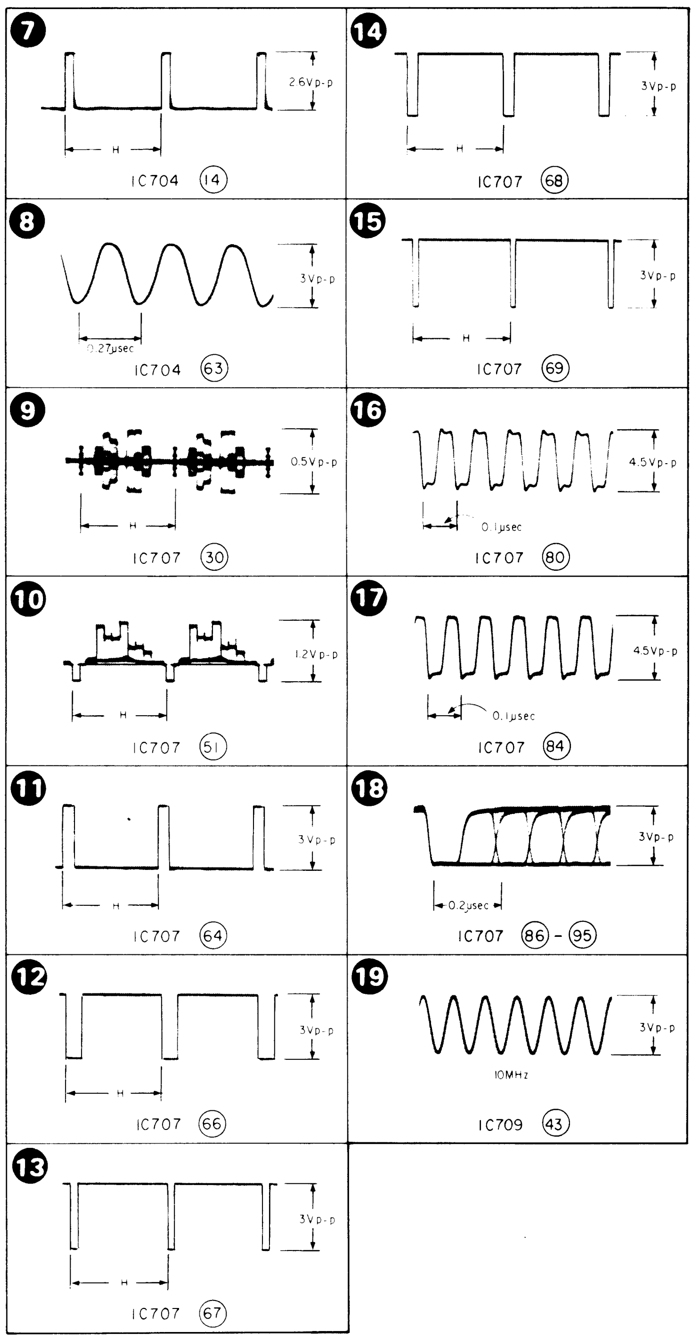
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡》	➡》》	
PB				

(See Page 114, 115)

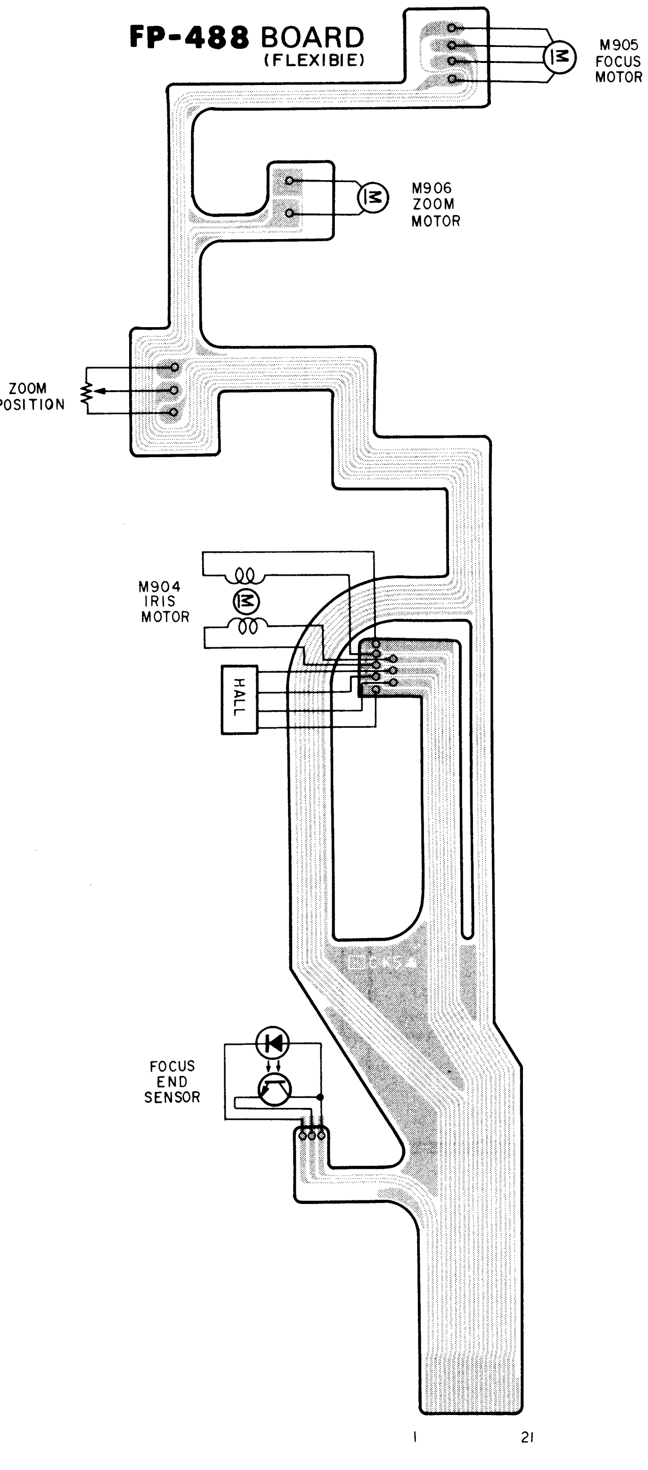
no mark : CAMERA RE mode.

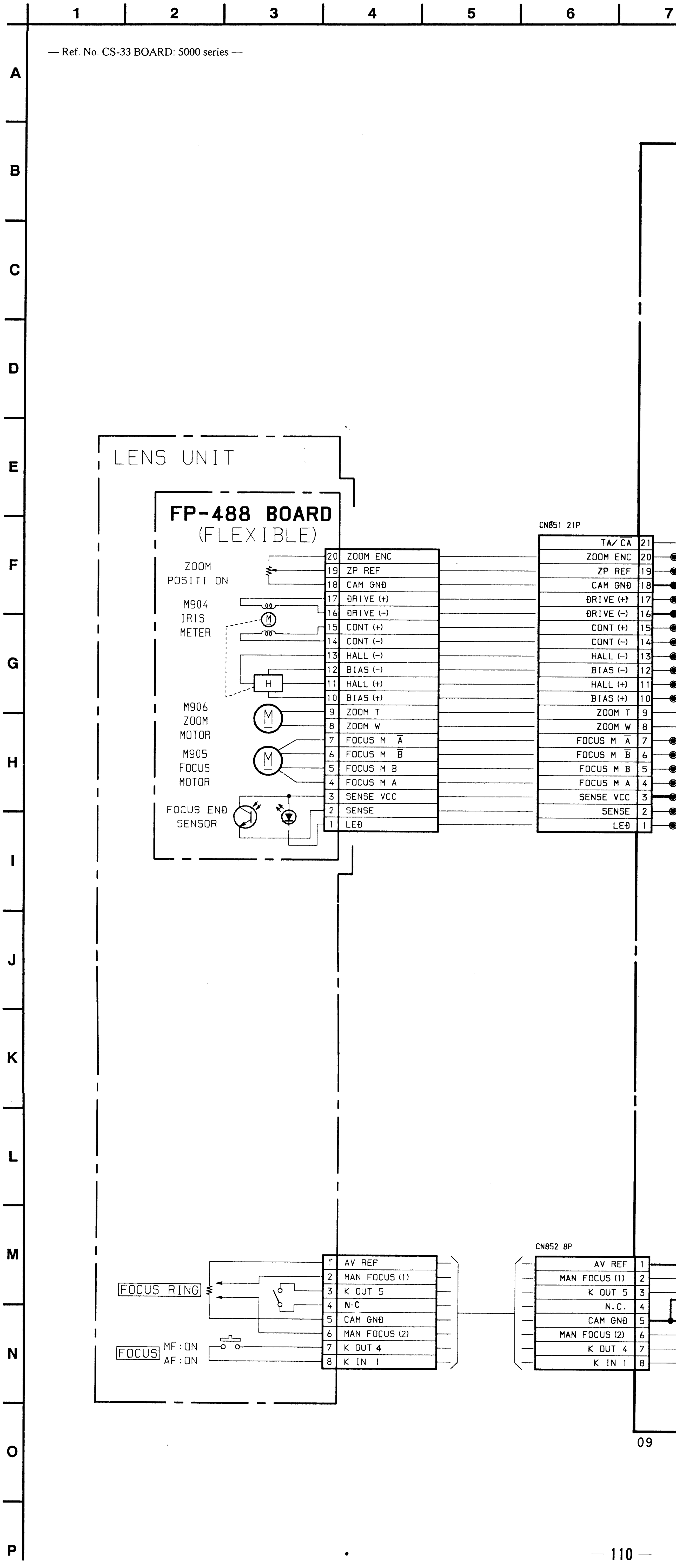
CS-33 BOARD (2/6)
(CAMRA(2) BLOCK)

CS-33 BOARD (2/6)



P-488 (INNER FOCUS LENS) PRINTED WIRING BOARD


FP-488 BOARD
(FLEXIBIE)
M905
FOCUS
MOTOR
M906
ZOOM
MOTOR
ZOOM
POSITION
M904
IRIS
MOTOR
HALL
FOCUS
END
SENSOR
1
21



— Ref. No. CS-33 BOARD: 5000 series —

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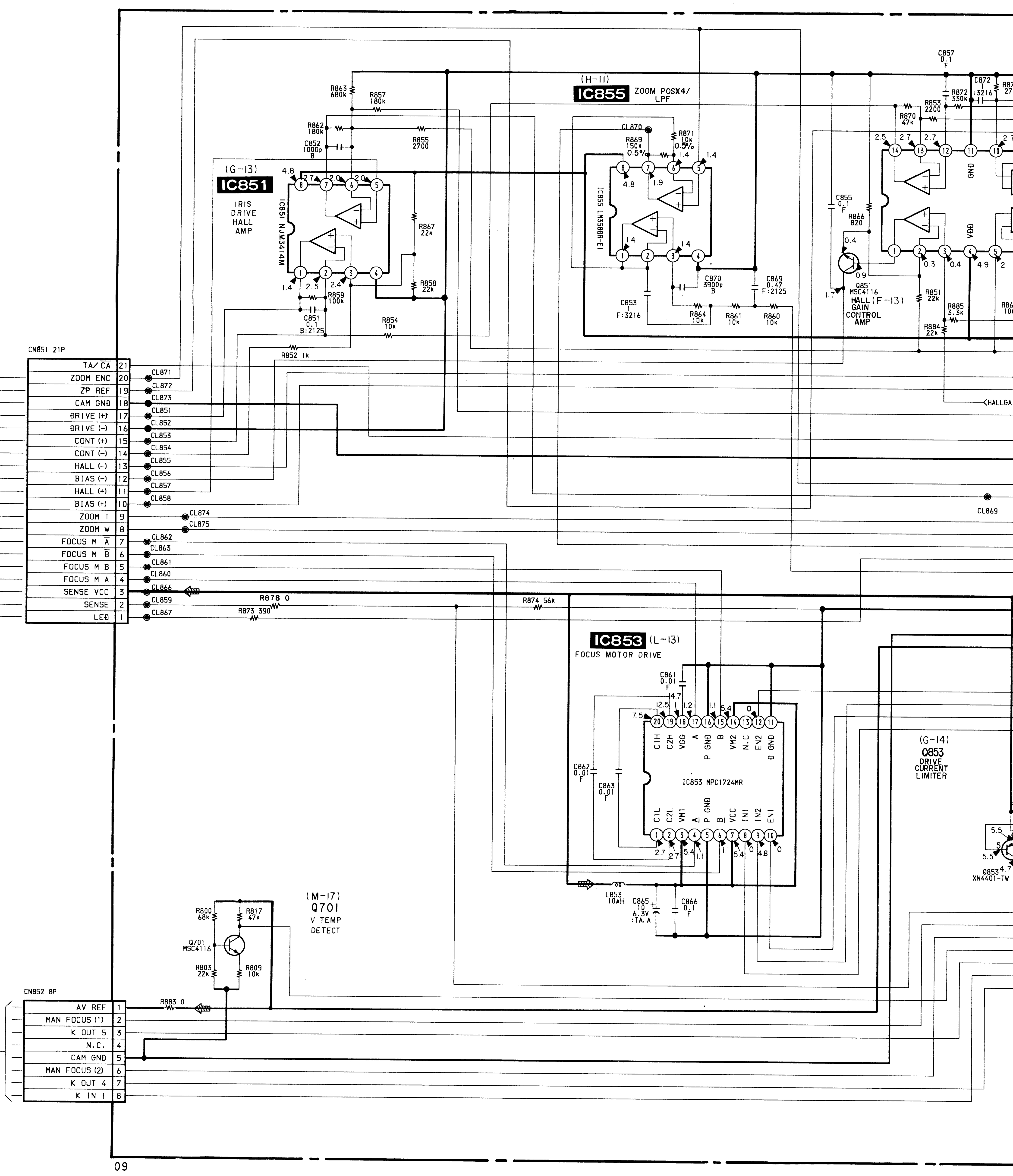
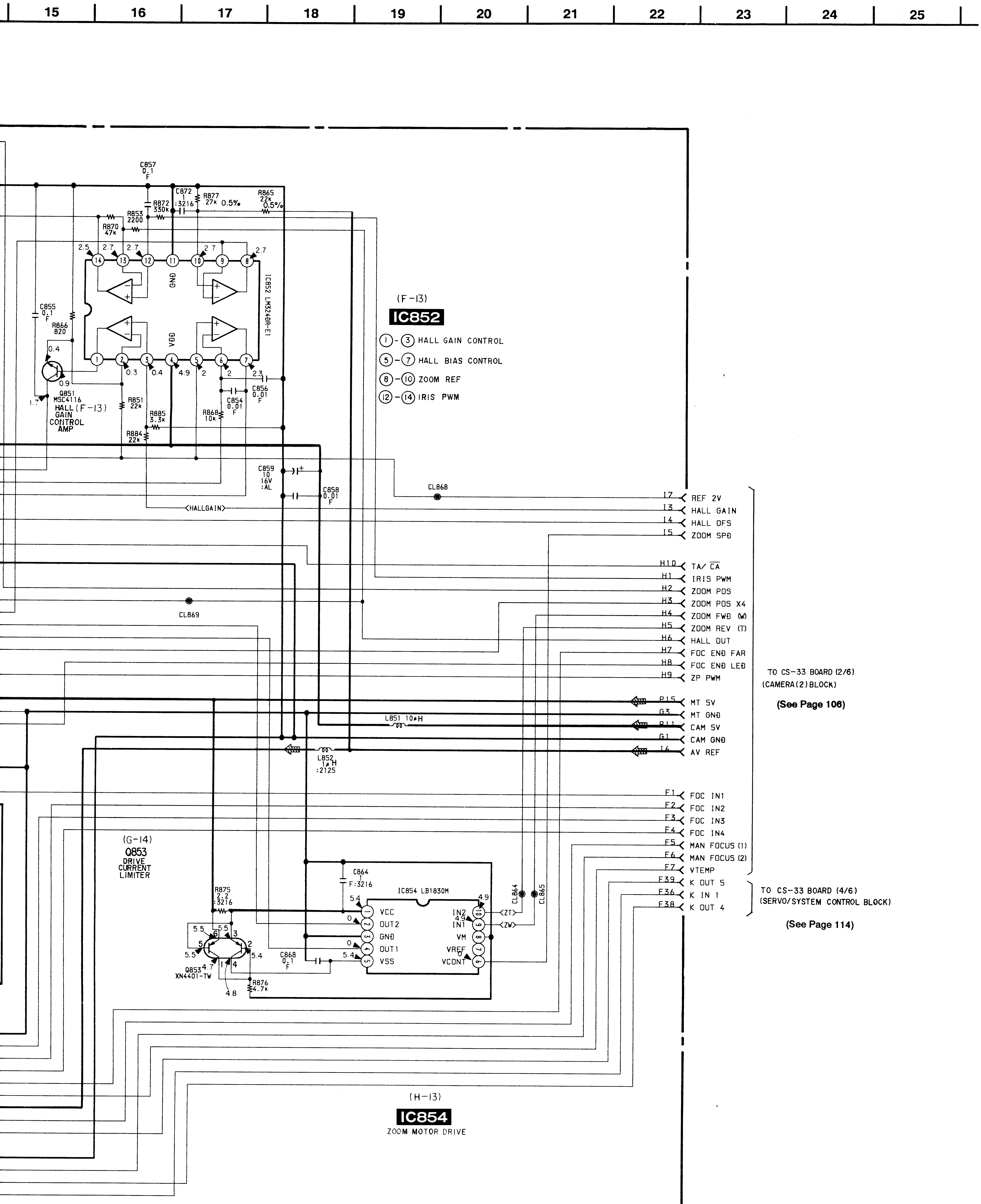
P
LENS UNIT
FP-488 BOARD
(FLEXIBLE)
ZOOM
POSITI ON
M904
IRIS
METER
H
M906
ZOOM
MOTOR
M905
FOCUS
MOTOR
FOCUS END
SENSOR
20 ZOOM ENC
19 ZP REF
18 CAM GND
17 DRIVE (+)
16 DRIVE (-)
15 CONT (+)
14 CONT (-)
13 HALL (-)
12 BIAS (-)
11 HALL (+)
10 BIAS (+)
9 ZOOM T
8 ZOOM W
7 FOCUS M Ā
6 FOCUS M B̄
5 FOCUS M B
4 FOCUS M A
3 SENSE VCC
2 SENSE
1 LED
CN851 21P
TA/CA 21
ZOOM ENC 20
ZP REF 19
CAM GND 18
DRIVE (+) 17
DRIVE (-) 16
CONT (+) 15
CONT (-) 14
HALL (-) 13
BIAS (-) 12
HALL (+) 11
BIAS (+) 10
ZOOM T 9
ZOOM W 8
FOCUS M Ā 7
FOCUS M B̄ 6
FOCUS M B 5
FOCUS M A 4
SENSE VCC 3
SENSE 2
LED 1
FOCUS RING
FOCUS
MF : ON
AF : ON
1 AV REF
2 MAN FOCUS (1)
3 K OUT 5
4 N·C
5 CAM GND
6 MAN FOCUS (2)
7 K OUT 4
8 K IN 1
CN852 8P
AV REF 1
MAN FOCUS (1) 2
K OUT 5 3
N.C. 4
CAM GND 5
MAN FOCUS (2) 6
K OUT 4 7
K IN 1 8
09

- Refer to page 100 for Printed Wiring Board.


(G-13)
IC851
IRIS DRIVE HALL AMP
IC851 NJM3414M
(H-11)
IC855
ZOOM POSX4/ LPF
IC855 LM358DR-E1
R863 680k
R857 180k
R862 180k
C852 1000p B
R855 2700
R867 22k
R858 22k
R859 100k
C851 0.1 B:2125
R854 10k
R852 1k
CL870
R869 150k 0.5%
R871 10k 0.5%
C870 3900p B
C869 0.47 F:2125
C853 1 F:3216
R864 10k
R861 10k
R860 10k
C857 0.1 F
C872 1 :3216
R872 330k
R853 2200
R870 47k
C855 0.1 F
R866 820
Q851 MSC4116
HALL (F-13) GAIN CONTROL AMP
R851 22k
R885 3.3k
R884 22k
GND
VDD
<HALLGA
CN851 21P
TA/CA 21
ZOOM ENC 20
ZP REF 19
CAM GND 18
DRIVE (+) 17
DRIVE (-) 16
CONT (+) 15
CONT (-) 14
HALL (-) 13
BIAS (-) 12
HALL (+) 11
BIAS (+) 10
ZOOM T 9
ZOOM W 8
FOCUS M A 7
FOCUS M B 6
FOCUS M B 5
FOCUS M A 4
SENSE VCC 3
SENSE 2
LED 1
CL871
CL872
CL873
CL851
CL852
CL853
CL854
CL855
CL856
CL857
CL858
CL874
CL875
CL862
CL863
CL861
CL860
CL866
CL859
CL867
CL869
R878 0
R873 390
R874 56k
IC853 (L-13)
FOCUS MOTOR DRIVE
IC853 MPC1724MR
C1H C2H VGG A P GND B VM2 N.C EN2 D GND
C1L C2L VM1 A P GND B VCC IN1 IN2 EN1
C861 0.01 F
C862 0.01 F
C863 0.01 F
L853 10μH
C865 10 6.3V :TA, A
C866 0.1 F
(G-14)
Q853
DRIVE CURRENT LIMITER
Q853 XN4401-TW
(M-17)
Q701
V TEMP DETECT
R800 68k
R817 47k
Q701 MSC4116
R803 22k
R809 10k
R883 0
CN852 8P
AV REF 1
MAN FOCUS (1) 2
K OUT 5 3
N.C. 4
CAM GND 5
MAN FOCUS (2) 6
K OUT 4 7
K IN 1 8
09


15
16
17
18
19
20
21
22
23
24
25
C857 0.1 F
C872 1 :3216
R877 27k 0.5%
R865 22k 0.5%
R872 330k
R853 2200
R870 47k
IC852 LM324DR-E1
GND
VDD
C855 0.1 F
R866 820
Q851 MSC4116 HALL (F-13) GAIN CONTROL AMP
R851 22k
R885 3.3k
R884 22k
C854 0.01 F
C856 0.01 F
R868 10k
C859 10 16V :AL
C858 0.01 F
<HALLGAIN>
CL868
CL869
(F-13)
IC852
①-③ HALL GAIN CONTROL
⑤-⑦ HALL BIAS CONTROL
⑧-⑩ ZOOM REF
⑫-⑭ IRIS PWM
I7 REF 2V
I3 HALL GAIN
I4 HALL OFS
I5 ZOOM SPD
H10 TA/ CA
H1 IRIS PWM
H2 ZOOM POS
H3 ZOOM POS X4
H4 ZOOM FWD (W)
H5 ZOOM REV (T)
H6 HALL OUT
H7 FOC END FAR
H8 FOC END LED
H9 ZP PWM
P15 MT 5V
G3 MT GND
P11 CAM 5V
G1 CAM GND
I6 AV REF
L851 10μH
L852 1μH :2125
F1 FOC IN1
F2 FOC IN2
F3 FOC IN3
F4 FOC IN4
F5 MAN FOCUS (1)
F6 MAN FOCUS (2)
F7 VTEMP
F39 K OUT 5
F36 K IN 1
F38 K OUT 4
TO CS-33 BOARD (2/6) (CAMERA(2) BLOCK)
(See Page 106)
TO CS-33 BOARD (4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
(G-14) Q853 DRIVE CURRENT LIMITER
C864 1 F:3216
IC854 LB1830M
VCC
OUT2
GND
OUT1
VSS
IN2
IN1
VM
VREF
VCONT
<ZT>
<ZW>
CL864
CL865
R875 2.2 :3216
Q853 XN4401-TW
R876 4.7k
C868 0.1 F
(H-13)
IC854
ZOOM MOTOR DRIVE

CS-33 BOARD (3/6)

no mark : CAMERA REC mode (CAMERA(3) BLOCK)

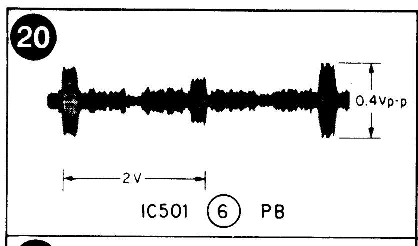
Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

- **SIGNAL PATH**

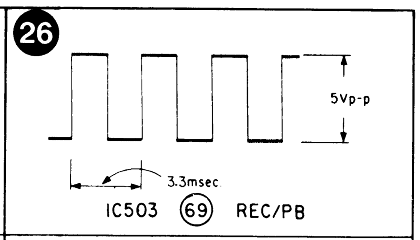
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛		
PB				

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		⊳	
Drum servo (speed and phase)		⋙	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		⋙	
Ref. signal	➤	➢	▷

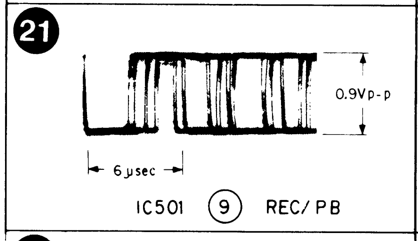
CS-33 BOARD (4/6)

⑳


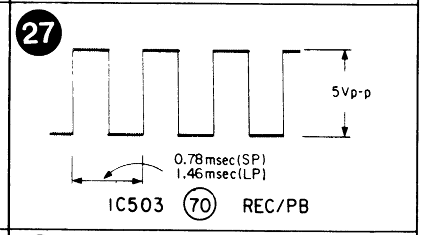
IC501 ⑥ PB

㉖


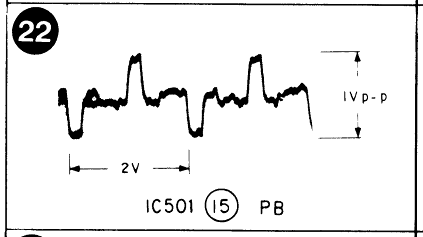
IC503 ㊾ REC/PB

㉑


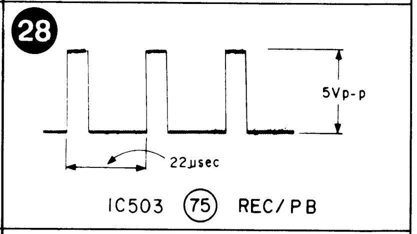
IC501 ⑨ REC/PB

㉗


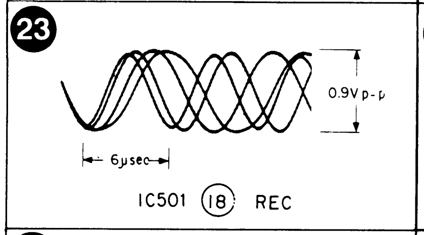
IC503 (70) REC/PB

㉒


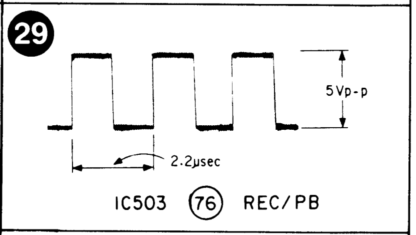
IC501 ⑮ PB

㉘


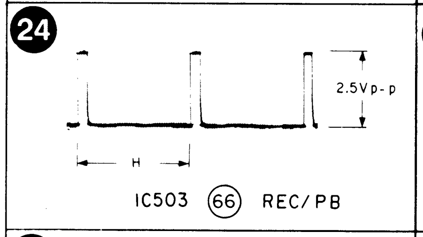
IC503 (75) REC/PB

㉓


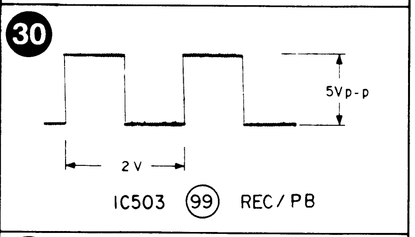
IC501 ⑱ REC

㉙


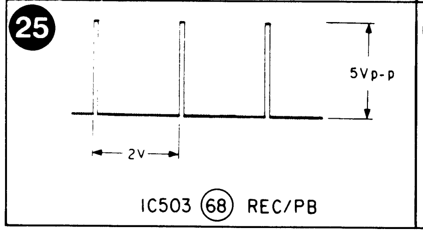
IC503 (76) REC/PB

㉔


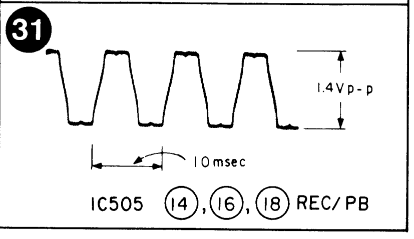
IC503 (66) REC/PB

㉚


IC503 (99) REC/PB

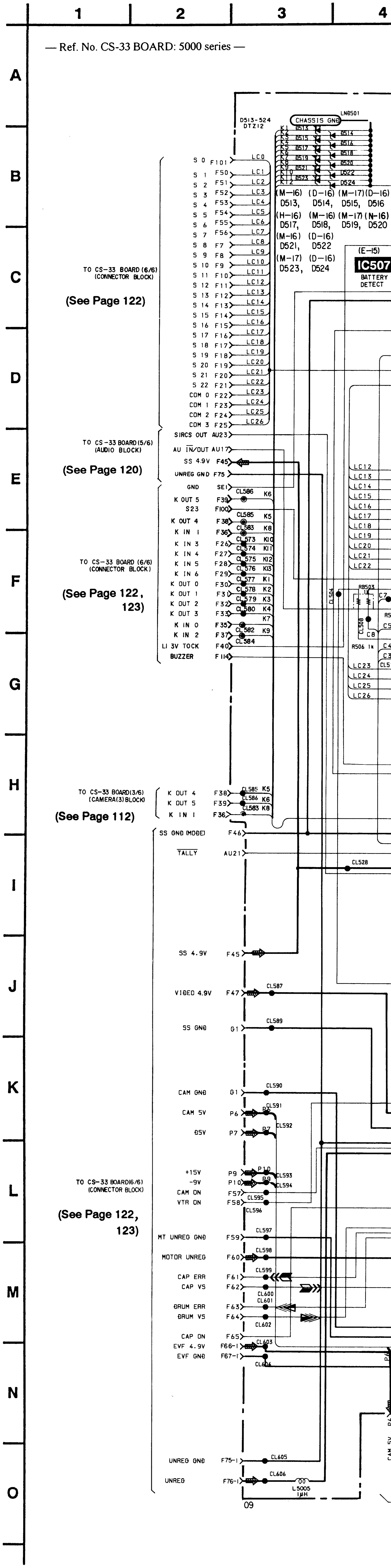
㉕


IC503 (68) REC/PB

㉛


IC505 ⑭,⑯,⑱ REC/PB

CS-33 (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM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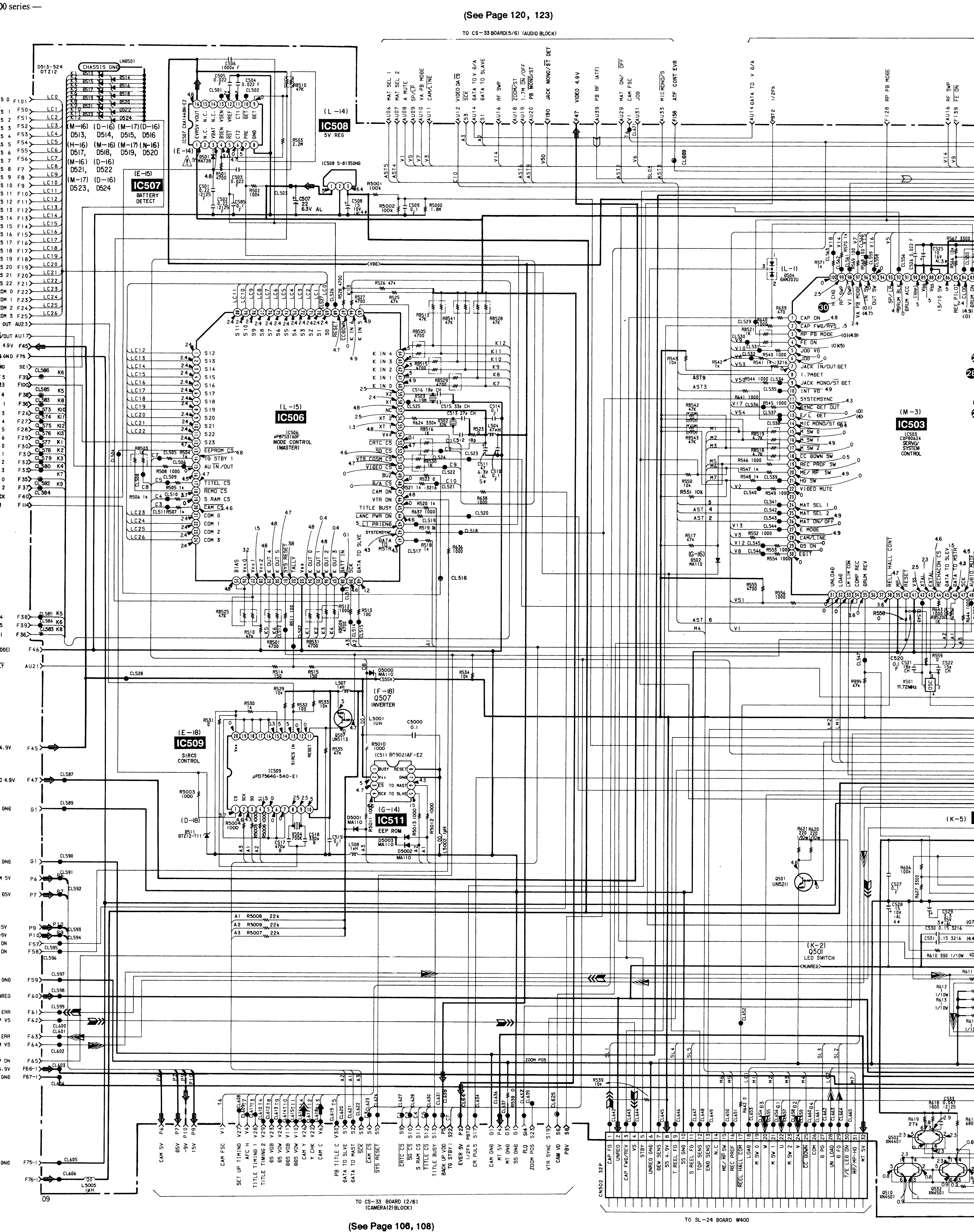
— Ref. No. CS-33 BOARD: 5000 series —
TO CS-33 BOARD (6/6) (CONNECTOR BLOCK)
(See Page 122)
TO CS-33 BOARD (5/6) (AUDIO BLOCK)
(See Page 120)
TO CS-33 BOARD (6/6) (CONNECTOR BLOCK)
(See Page 122, 123)
TO CS-33 BOARD (3/6) (CAMERA(3) BLOCK)
(See Page 112)
TO CS-33 BOARD (6/6) (CONNECTOR BLOCK)
(See Page 122, 123)
D513-524 DTZ12
CHASSIS GND
LN0501
IC507
BATTERY DETECT
SIRCS OUT
AU IN/OUT
SS 4.9V
UNREG GND
BUZZER
SS GND (MODE)
TALLY
SS 4.9V
VIDEO 4.9V
SS GND
CAM GND
CAM 5V
D5V
+15V
-9V
CAM ON
VTR ON
MT UNREG GND
MOTOR UNREG
CAP ERR
CAP VS
DRUM ERR
DRUM VS
CAP ON
EVF 4.9V
EVF GND
UNREG GND
UNREG
L5005 1μH
09

• Refer to page 100 for Printed Wiring Board.

00 series —



(See Page 120, 123)

TO CS-33 BOARD(5/6) (AUDIO BLOCK)

TO CS-33 BOARD (2/6) (CAMERA(2) BLOCK)

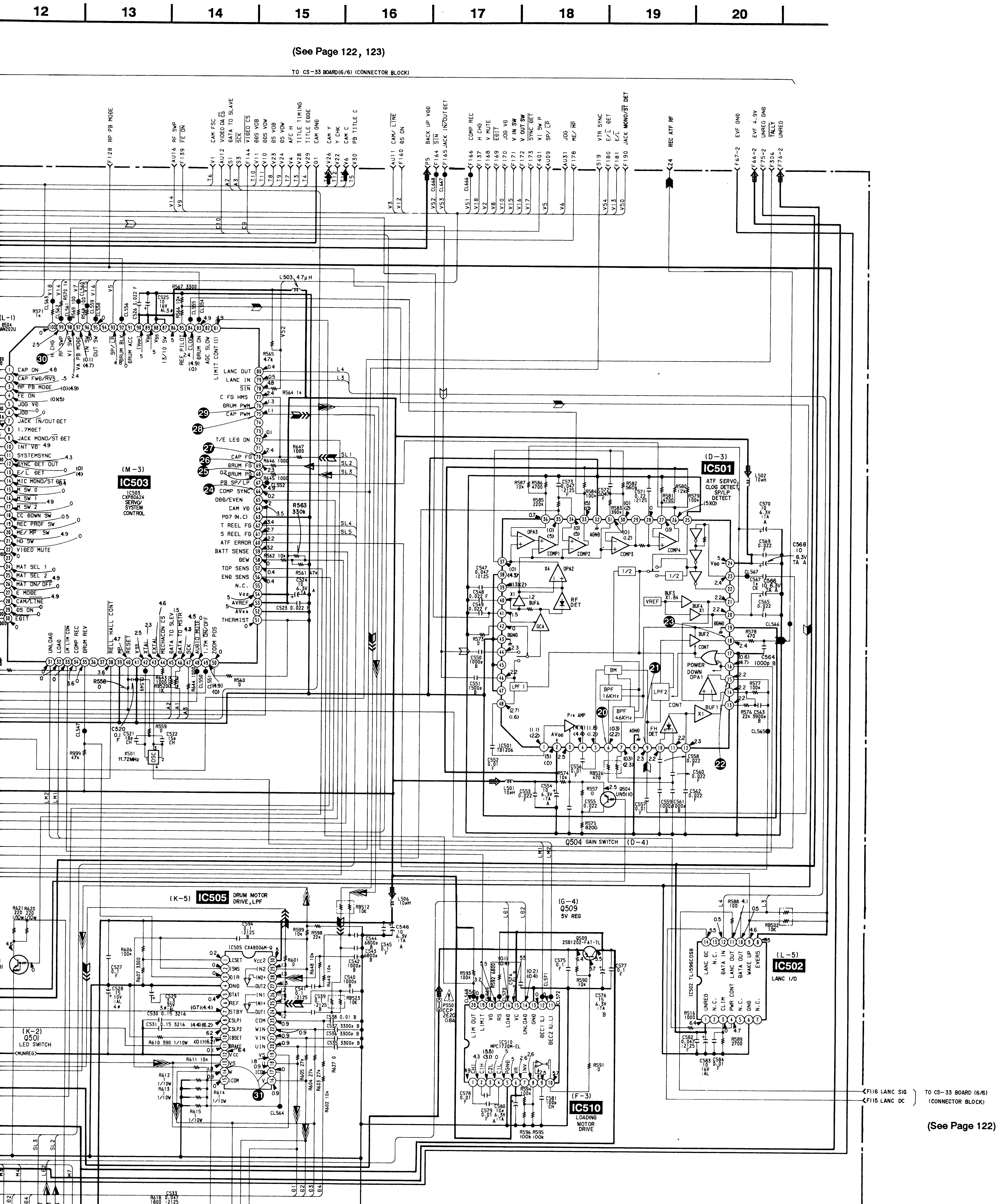
(See Page 106, 108)

TO SL-24 BOARD W400

(See Page 158)

(E-15)
IC507
BATTERY DETECT
(L-14)
IC508
5V REG
IC508 S-81350HG
(L-15)
IC506
IC506 μPD75316GF
MODE CONTROL (MASTER)
(E-18)
IC509
SIRCS CONTROL
IC509 μPD7564G-540-E1
(F-18)
Q507
INVERTER
(G-14)
IC511
EEP ROM
IC511 BR9021AF-E2
(L-1)
D504 DAN202U
(M-3)
IC503
IC503 CXP80624
SERVO/SYSTEM CONTROL
(G-16)
D502 MA110
(K-2)
Q501
LED SWITCH
X501 11.72MHz
CHASSIS GND
D513-524 DTZ12
(K-5)
ZOOM POS
CN502 32P
CAP FG
UNREG
CAP FWD/REV
VS
STBY
UNREG GND
DEW SENS
T REEL FG
SS GND
S REEL FG
TOP SENS
END SENS
N.C
ME/HP SW
REC PROF
REEL HALL COM
LOAD
M SW 0
M SW 1
M SW 2
CC DOWN
COM
UN LOAD
D PG
D FG
T/E LED ON
HP/MP-HG
MT 5V
CAM 5V
05V
-9V
15V
CAM FSC
SET UP TIMING
AFC H
TITLE TIMING 2
TITLE TIMING 1
05 VOB
05 VOW
065 VOB
065 VOW
CAM Y
Y CHK
CAM C
PB TITLE C
DATA TO SLVE
DATA TO MAST
SCK
CAM CS
SYS RESET
CRTC CS
SG CS
S RAM CS
TITLE CS
TITLE BUSY
BACK UP VDD
TG STBY I
EVER 5V
1/2Fh
CR PULS
CAM GND
MT 5V
MT GND
SS GND
FLD
ZOOM POS
VTR SYNC
CAM VD
PBV
MAT SEL 1
MAT SEL 2
A MUTE
SP/LP
VA PB MODE
CAM/LINE
VIDEO DATA CS
SCK
DATA TO D/A
DATA TO SLAVE
RF SWP
ZOOM/ST
1.7M ON/OFF
PB MONO/ST
JACK MONO/ST DET
VIDEO 4.9V
PB RF (ATF)
MAT ON/OFF
CAM FSC
JOG
MIC MONO/S
ATF CONT EVR
DATA TO V D/A
1/2Fh
RP PB MODE
RF SWP
FE ON

(See Page 122, 123)


12
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TO CS-33 BOARD(6/6) (CONNECTOR BLOCK)
(M-3)
IC503
CXP80624
SERVO/SYSTEM CONTROL
(D-3)
IC501
ATF SERVO, CLOG DETECT, SP/LP DETECT
Q504 GAIN SWITCH (D-4)
(K-5) IC505 DRUM MOTOR DRIVE, LPF
IC505 CXA8006M-Q
(G-4) Q509 5V REG
Q509 2SB1202-FAT-TL
(F-3) IC510 LOADING MOTOR DRIVE
IC510 MPC1720M-EL
(L-5) IC502 LANC I/O
IC502 TL1596CDSB
(K-2) Q501 LED SWITCH
(G-5)(H-4)(G-4) Q502,510,532 SILENCER
X501 11.72MHz
F116 LANC SIG
F115 LANC DC
TO CS-33 BOARD (6/6) (CONNECTOR BLOCK)

(See Page 122)

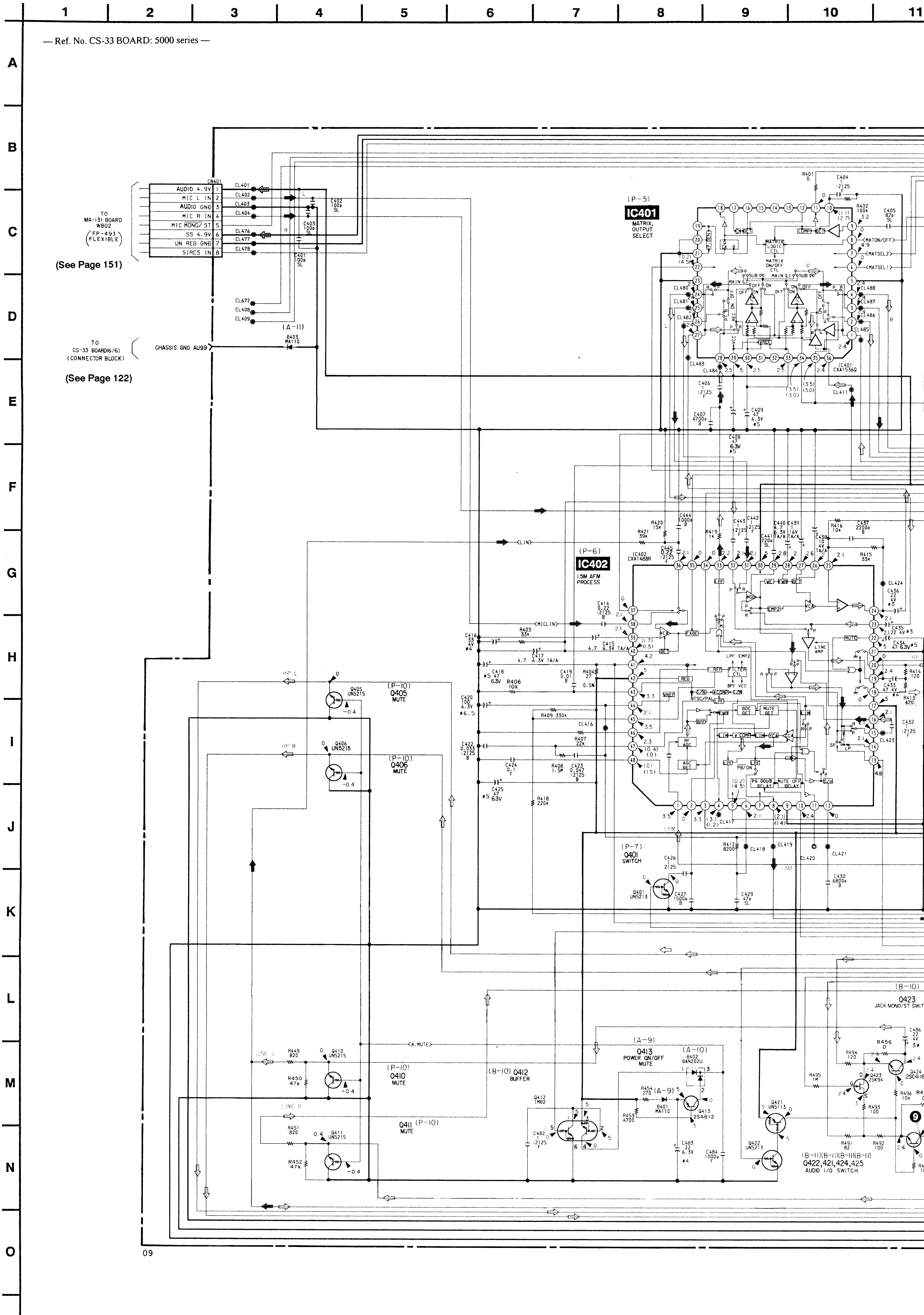
CS-33 BOARD (4/6)(SERVO/SYSTEM CONTROL BLOCK)

SERVO/SYSTEM CONTROL SERVO/SYSTEM CONTROL

CS-33 (AUDIO) SCHEMATIC DIAGRAM

• Refer to page 100 for Printed Wiring Board.

— Ref. No. CS-33 BOARD: 5000 series —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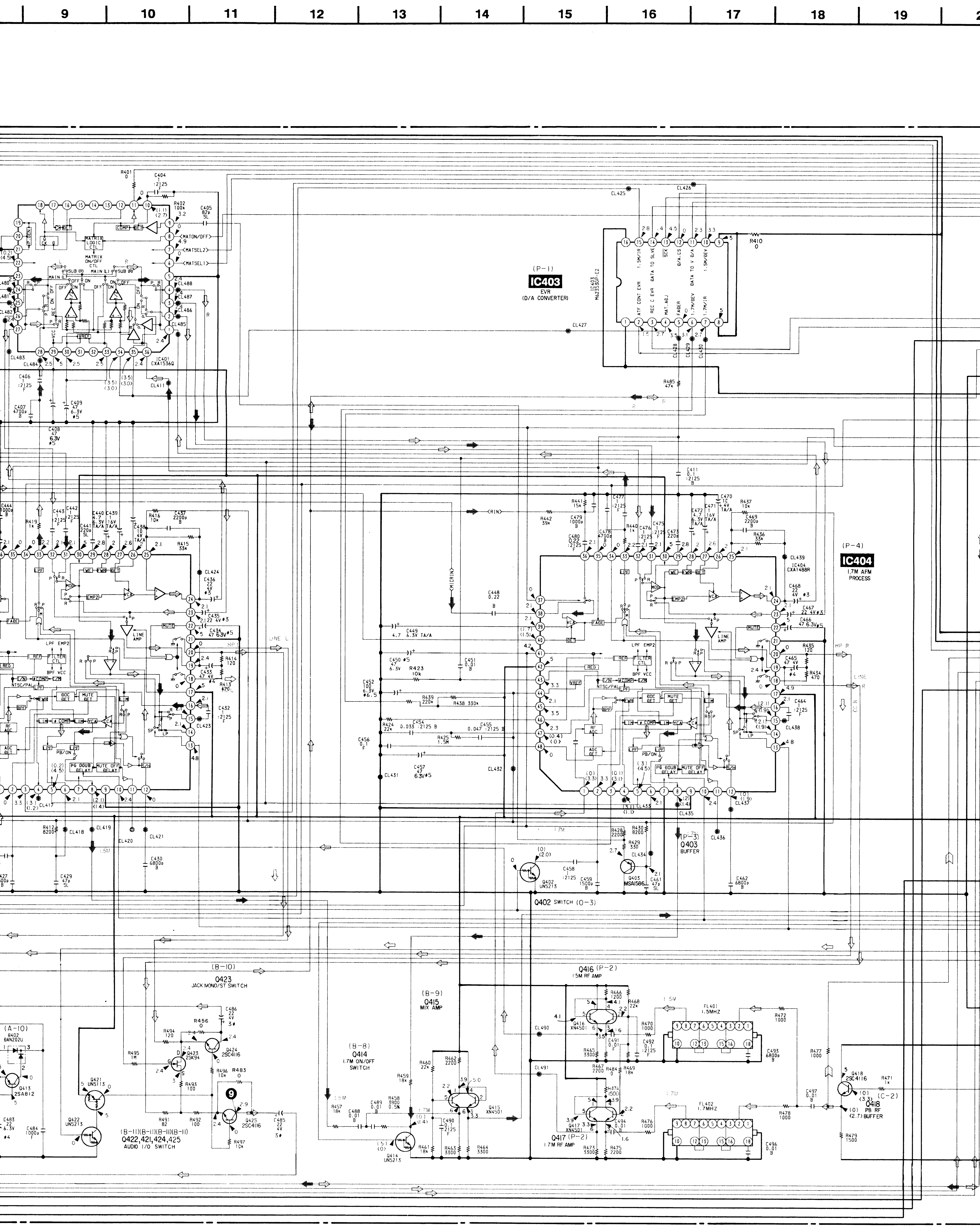
CN401
AUDIO 4.9V
MIC L IN
AUDIO GND
MIC R IN
MIC MONO/ ST
SS 4.9V
UN REG GND
SIRCS IN
TO MA-131 BOARD W802 (FP-493 FLEXIBLE)
(See Page 151)
TO CS-33 BOARD(6/6) (CONNECTOR BLOCK)
CHASSIS GND AU99
(See Page 122)
C402 100p SL
C403 100p SL
C401 100p SL
(A-11) D403 MA110
(P-5)
IC401
MATRIX, OUTPUT SELECT
IC401 CXA1536Q
MATRIX LOGIC CTL
MATRIX ON/OFF CTL
<MATON/OFF>
<MATSEL2>
<MATSEL1>
(P-6)
IC402
1.5M AFM PROCESS
IC402 CXA1488R
<LIN>
<MICLIN>
LINE AMP
HP L
HP R
(P-10) Q405 MUTE
Q405 UN5215
(P-10) Q406 MUTE
Q406 UN5215
(P-7) Q401 SWITCH
Q401 UN5213
LINE L
LINE R
<A.MUTE>
(P-10) Q410 MUTE
Q410 UN5215
Q411 (P-10) MUTE
Q411 UN5215
(B-10) Q412 BUFFER
Q412 IMB2
(A-9) Q413 POWER ON/OFF MUTE
(A-10) D402 DAN202U
D401 MA110
Q413 2SA812
Q421 UN5113
Q422 UN5213
(B-11)(B-11)(B-11)(B-11) Q422,421,424,425 AUDIO I/O SWITCH
(B-10) Q423 JACK MONO/ST SWIT
Q423 2SK94
Q424 2SC4116
09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12
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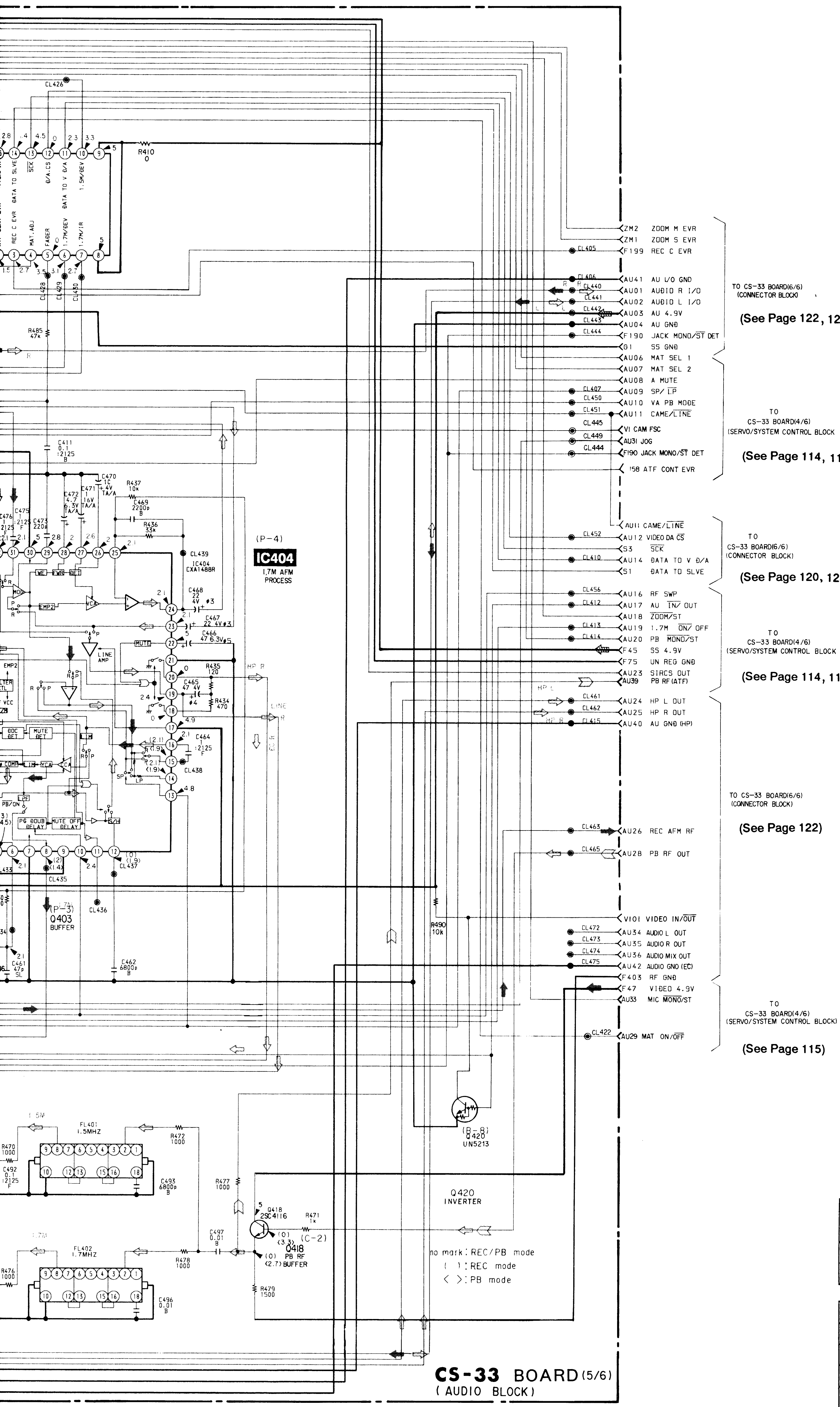
14
15
16
17
18
19
(P-1)
IC403
EVR
(D/A CONVERTER)
IC403 M62358P-E2
1.5M/IR
DATA TO SLVE
SCK
D/A.CS
DATA TO V D/A
1.5M/DEV
ATF CONT EVR
REC C EVR
MAT.ADJ
FADER
1.7M/DEV
1.7M/IR
R410 0
CL425
CL426
CL427
CL428
CL429
CL430
R485 47k
IC401
CXA1536Q
MATRIX LOGIC CTL
MATRIX ON/OFF CTL
MAIN (L)
MAIN (R)
SUB (L)
SUB (R)
<MATON/OFF>
<MATSEL2>
<MATSEL1>
VREF
R401 0
R402 100k
C404 1 :2125
C405 82p SL
C406 1 :2125 F
C407 4700p B
C408 47 6.3V #5
C409 47 6.3V #5
CL411
CL483
CL484
CL485
CL486
CL487
CL488
(P-4)
IC404
1.7M AFM PROCESS
IC404 CXA1488R
<RIN>
<MICRIN>
LINE AMP
MUTE
FADE
LPF
EMP2
FILTER CTL
BPF VCC
NTSC/PAL
DOC DET
MUTE DET
RF AGC
AGC DET
PG DOUB DELAY
MUTE OFF DELAY
PB/ON
COMP
VCA
LIM
REG
HP R
LINE R
LINE L
SP L
C448 0.22 B
C449 4.7 6.3V TA/A
C450 #5 47 6.5V
R423 10k
C451 0.01 B
C452 100 6.3V #6.5
R439 220k
R438 330k
R424 22k
C454 0.033 :2125 B
C455 0.047 :2125 B
R425 1.5M
C456 0.1 F
C457 47 6.3V #5
CL431
CL432
CL433
CL434
CL435
CL436
CL437
CL438
CL439
(P-3)
Q403
BUFFER
Q403 MSA1586
Q402 UN5213
Q402 SWITCH (O-3)
C458 1 :2125
C459 1500p B
C461 47p SL
C462 6800p B
R428 2200
R429 330
R430 8200
Q416 (P-2)
1.5M RF AMP
Q416 XN4501
R466 1200
R468 22k
R470 1000
C491 0.01 F
C492 0.1 :2125 F
R465 3300
R467 2200
R484 0
R469 18k
R474 1500
FL401 1.5MHZ
R472 1000
C493 6800p B
R477 1000
Q417 (P-2)
1.7M RF AMP
Q417 XN4501
C494 0.01
R476 1000
R473 3300
R475 2200
FL402 1.7MHZ
C497 0.01 B
R478 1000
C496 0.01 B
Q418 2SC4116
R471 1k
Q418 (C-2)
PB RF BUFFER
R479 1500
CL490
CL491
(B-9)
Q415
MIX AMP
Q415 XN4501
R460 22k
R462 2200
R461 18k
R463 3300
R464 3300
C490 0.1 :2125
(B-8)
Q414
1.7M ON/OFF SWITCH
Q414 UN5213
R457 18k
C488 0.01 B
C489 0.01 B
R458 3900 0.5%
R459 18k
(B-10)
Q423
JACK MONO/ST SWITCH
Q423 2SK94
Q424 2SC4116
Q425 2SC4116
R456 0
R494 120
R495 1M
R496 10k
R483 0
R493 100
R491 82
R492 100
R497 10k
C485 22 4V 3#
C486 22 4V 3#
(B-11)(B-11)(B-11)(B-11)
Q422,421,424,425
AUDIO I/O SWITCH
Q421 UN5113
Q422 UN5213
(A-10)
D402 DAN202U
Q413 2SA812
C483 22 6.3V #4
C484 1000p B
R412 8200
C429 47p SL
C430 6800p B
CL417
CL418
CL419
CL420
CL421
CL423
CL424
9
1.5M
1.7M


CL426
R410
0
SCK
D/A.CS
DATA TO V D/A
1.5M/DEV
DATA TO SLVE
REC C EVR
MAT.ADJ
FADER
1.7M/DEV
1.7M/IR
CL428
CL429
CL430
R485
47k
C411
0.1
C470
C471
C472
C473
C475
C476
R437
10k
C469
2200p
R436
33k
CL439
IC404
CXA1488R
(P-4)
IC404
1.7M AFM
PROCESS
C468
22
4V
C467
22 4V
C466
47 6.3V
MUTE
LINE AMP
EMP2
MOD
R435
120
C465
47 4V
R434
470
HP R
LINE R
HP L
C464
1
CL438
SP
LP
PB/ON
PB DOUB DELAY
MUTE OFF DELAY
CL437
CL435
CL436
(P-3)
Q403
BUFFER
C461
47p
C462
6800p
R490
10k
Q420
UN5213
(B-8)
FL401
1.5MHZ
R472
1000
R470
1000
C492
0.1
C493
6800p
R477
1000
Q418
2SC4116
(C-2)
Q418
PB RF BUFFER
R471
1k
C497
0.01
FL402
1.7MHZ
R478
1000
R476
1000
C496
0.01
R479
1500
Q420
INVERTER
no mark : REC/PB mode
( ) : REC mode
< > : PB mode
ZM2 ZOOM M EVR
ZM1 ZOOM S EVR
CL405
F199 REC C EVR
CL406
AU41 AU I/O GND
CL440
AU01 AUDIO R I/O
CL441
AU02 AUDIO L I/O
CL442
AU03 AU 4.9V
CL443
AU04 AU GND
CL444
F190 JACK MONO/ST DET
G1 SS GND
TO CS-33 BOARD(6/6)
(CONNECTOR BLOCK)
(See Page 122, 123)
AU06 MAT SEL 1
AU07 MAT SEL 2
AU08 A MUTE
CL407
AU09 SP/LP
CL450
AU10 VA PB MODE
CL451
AU11 CAME/LINE
CL445
VI CAM FSC
CL449
AU31 JOG
CL444
F190 JACK MONO/ST DET
158 ATF CONT EVR
TO
CS-33 BOARD(4/6)
(SERVO/SYSTEM CONTROL BLOCK
(See Page 114, 115)
AU11 CAME/LINE
CL452
AU12 VIDEO DA CS
S3 SCK
CL410
AU14 DATA TO V D/A
S1 DATA TO SLVE
TO
CS-33 BOARD(6/6)
(CONNECTOR BLOCK)
(See Page 120, 123)
CL456
AU16 RF SWP
CL412
AU17 AU IN/OUT
AU18 ZOOM/ST
CL413
AU19 1.7M ON/OFF
CL414
AU20 PB MONO/ST
F45 SS 4.9V
F75 UN REG GND
AU23 SIRCS OUT
AU39 PB RF (ATF)
TO
CS-33 BOARD(4/6)
(SERVO/SYSTEM CONTROL BLOCK
(See Page 114, 115)
CL461
AU24 HP L OUT
CL462
AU25 HP R OUT
CL415
AU40 AU GND (HP)
TO CS-33 BOARD(6/6)
(CONNECTOR BLOCK)
(See Page 122)
CL463
AU26 REC AFM RF
CL465
AU28 PB RF OUT
VI01 VIDEO IN/OUT
CL472
AU34 AUDIO L OUT
CL473
AU35 AUDIO R OUT
CL474
AU36 AUDIO MIX OUT
CL475
AU42 AUDIO GND (EC)
F403 RF GND
F47 VIDEO 4.9V
AU33 MIC MONO/ST
CL422
AU29 MAT ON/OFF
TO
CS-33 BOARD(4/6)
(SERVO/SYSTEM CONTROL BLOCK)
(See Page 115)
CS-33 BOARD (5/6)
(AUDIO BLOCK)

- **SIGNAL PATH**

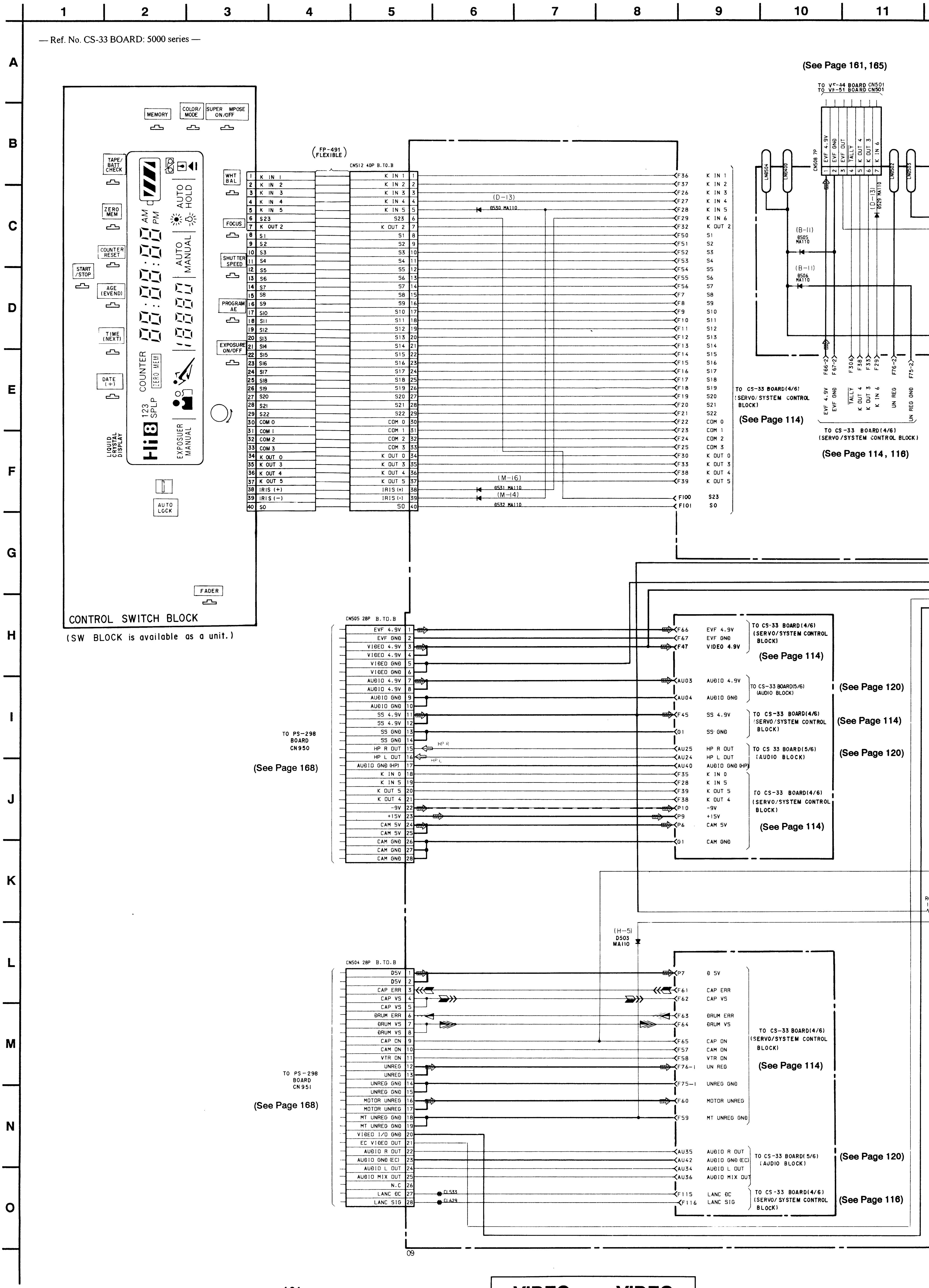
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)			
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal			▷

CS-33 (CONNECTOR BLOCK) SCHEMATIC DIAGRAM

• Refer to page 100 for Printed Wiring Board.

— Ref. No. CS-33 BOARD: 5000 series —



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A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
MEMORY
COLOR/MODE
SUPER IMPOSE ON/OFF
TAPE/BATT CHECK
WHT BAL
ZERO MEM
FOCUS
COUNTER RESET
START /STOP
SHUTTER SPEED
AGE (EVEND)
PROGRAM AE
TIME (NEXT)
EXPOSURE ON/OFF
DATE (+)
AUTO LOCK
FADER
LIQUID CRYSTAL DISPLAY
Hi8
123 SPLP
COUNTER
ZERO MEM
EXPOSURE MANUAL
AUTO MANUAL
AUTO HOLD
AM PM
CONTROL SWITCH BLOCK
(SW BLOCK is available as a unit.)
(FP-491 FLEXIBLE)
CN512 40P B.TO.B
K IN 1
K IN 2
K IN 3
K IN 4
K IN 5
S23
K OUT 2
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
S22
COM 0
COM 1
COM 2
COM 3
K OUT 0
K OUT 3
K OUT 4
K OUT 5
IRIS (+)
IRIS (−)
S0
(D-13)
D530 MA110
(M-16)
D531 MA110
(M-14)
D532 MA110
F36
F37
F26
F27
F28
F29
F32
F50
F51
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F17
F18
F19
F20
F21
F22
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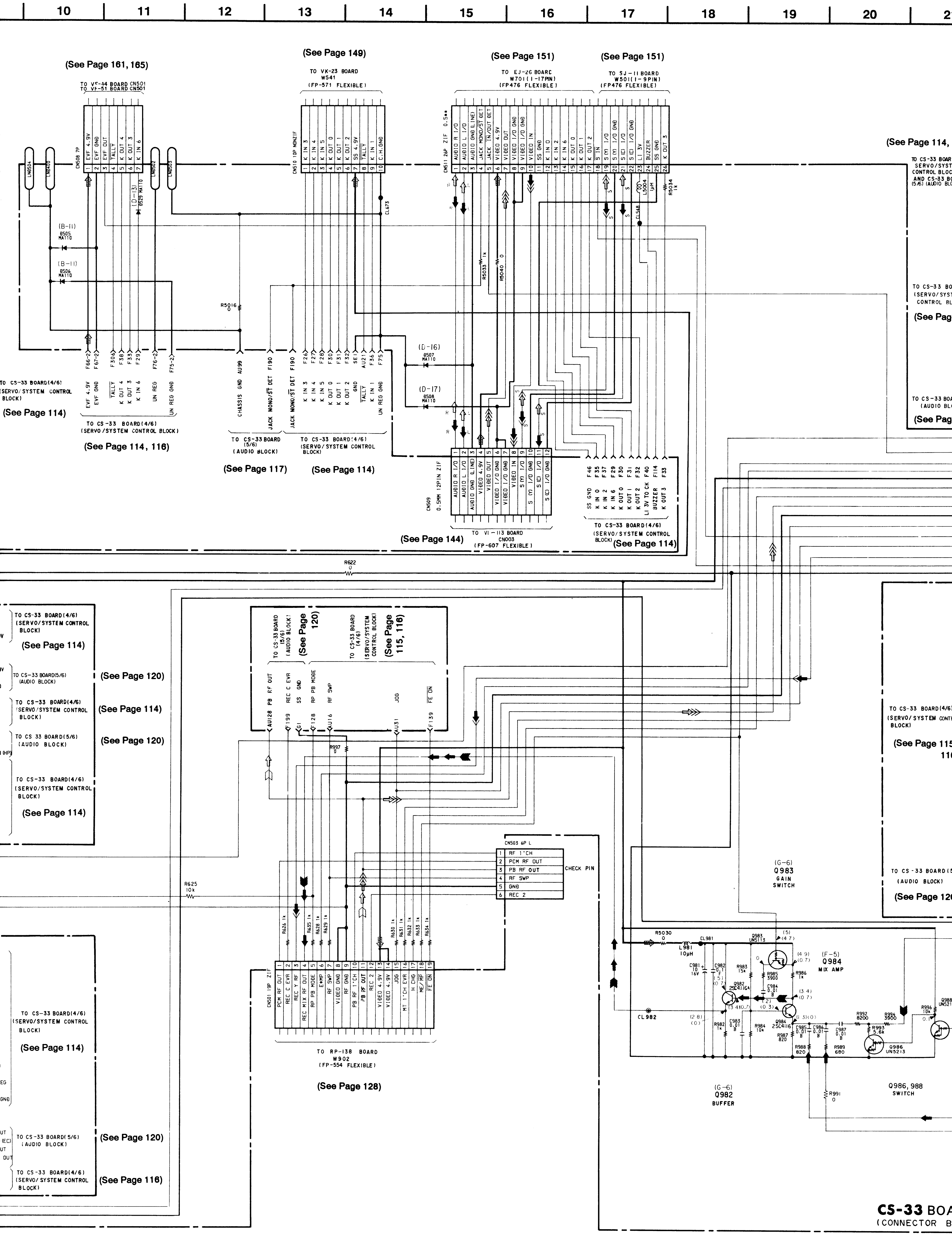
F24
F25
F30
F33
F38
F39
F100
F101
K IN 6
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
(See Page 161, 165)
TO VF-44 BOARD CN501
TO VF-51 BOARD CN501
CN508 7P
EVF 4.9V
EVF GND
EVF OUT
TALLY
LN0504
LN0400
LN0502
LN0503
(D-13) D529 MA110
(B-11) D505 MA110
(B-11) D506 MA110
F66-2
F67-2
F306
F38
F33
F29
F76-2
F75-2
UN REG
UN REG GND
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114, 116)
CN505 28P B.TO.B
EVF 4.9V
EVF GND
VIDEO 4.9V
VIDEO GND
AUDIO 4.9V
AUDIO GND
SS 4.9V
SS GND
HP R OUT
HP L OUT
AUDIO GND (HP)
K IN 0
K IN 5
K OUT 5
K OUT 4
-9V
+15V
CAM 5V
CAM GND
TO PS-298 BOARD CN950
(See Page 168)
HP R
HP L
F66
F67
F47
AU03
AU04
F45
G1
AU25
AU24
AU40
F35
F28
F39
F38
P10
P9
P6
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
TO CS-33 BOARD(5/6) (AUDIO BLOCK)
(See Page 120)
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
TO CS 33 BOARD(5/6) (AUDIO BLOCK)
(See Page 120)
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
(H-5) D503 MA110
CN504 28P B.TO.B
D5V
CAP ERR
CAP VS
DRUM ERR
DRUM VS
CAP ON
CAM ON
VTR ON
UNREG
UNREG GND
MOTOR UNREG
MT UNREG GND
VIDEO I/O GND
EC VIDEO OUT
AUDIO R OUT
AUDIO GND (EC)
AUDIO L OUT
AUDIO MIX OUT
N.C
LANC DC
LANC SIG
TO PS-298 BOARD CN951
(See Page 168)
CL533
CL629
P7
F61
F62
F63
F64
F65
F57
F58
F76-1
F75-1
F60
F59
AU35
AU42
AU34
AU36
F115
F116
D 5V
UN REG
UNREG GND
MOTOR UNREG
MT UNREG GND
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
TO CS-33 BOARD(5/6) (AUDIO BLOCK)
(See Page 120)
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 116)
09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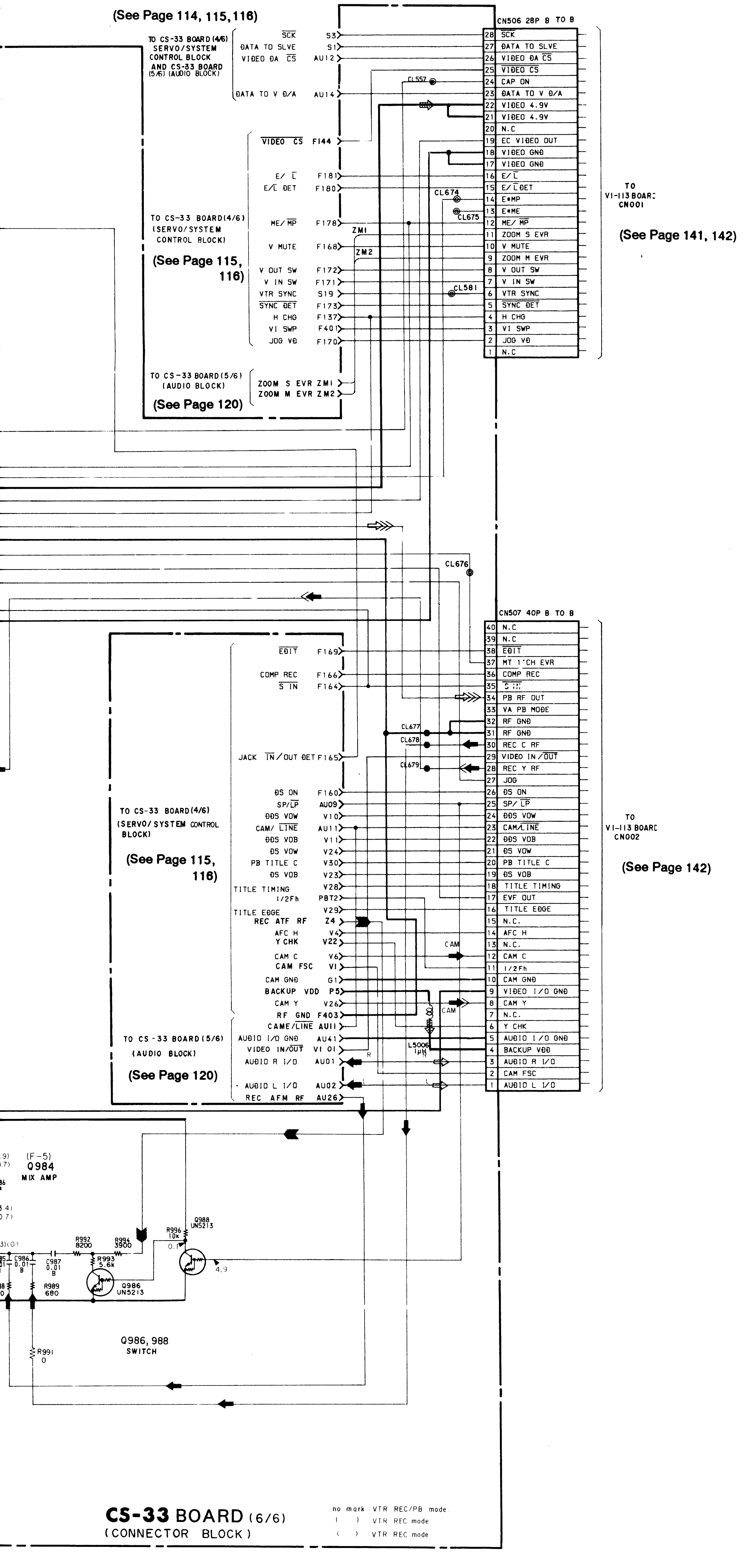
19
20
(See Page 161, 165)
TO VF-44 BOARD CN501
TO VF-51 BOARD CN501
CN508 7P
EVF 4.9V
EVF GND
EVF OUT
TALLY
K OUT 4
K OUT 3
K IN 6
LN504
LN400
LN502
LN503
(D-13)
D529 MA110
(B-11)
D505 MA110
(B-11)
D506 MA110
(See Page 149)
TO VK-23 BOARD
W541
(FP-571 FLEXIBLE)
CN510 10P NONZIF
K IN 3
K IN 4
K IN 5
K OUT 0
K OUT 1
K OUT 2
SS 4.9V
TALLY
K IN 1
C.H.GND
CL673
R5016 0
(See Page 151)
TO EJ-26 BOARD
W701(1-17PIN)
(FP476 FLEXIBLE)
(See Page 151)
TO SJ-11 BOARD
W501(1-9PIN)
(FP476 FLEXIBLE)
CN511 26P ZIF 0.5mm
AUDIO R I/O
AUDIO L I/O
AUDIO GND (LINE)
JACK MONO/ST DET
JACK IN/OUT DET
VIDEO 4.9V
VIDEO OUT
VIDEO I/O GND
VIDEO I/O GND
VIDEO IN
SS GND
K IN 0
K IN 2
K IN 6
K OUT 0
K OUT 1
K OUT 2
S IN
S (Y) I/O
S (Y) I/O GND
S (C) I/O
S (C) I/O GND
LI 3V
BUZZER
SS GND
K OUT 3
L5004 1µH
R5034 1k
CL548
R5033 1k
R5040 0
(D-16)
D507 MA110
(D-17)
D508 MA110
F66-2
F67-2
F306
F38
F33
F29
F76-2
F75-2
AU99
F190
F190
F26
F27
F28
F30
F31
F32
SE1
AU21
F36
F75
TO CS-33 BOARD(4/6)
(SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
EVF 4.9V
EVF GND
TALLY
K OUT 4
K OUT 3
K IN 6
UN REG
UN REG GND
CHASSIS GND
JACK MONO/ST DET
JACK MONO/ST DET
K IN 3
K IN 4
K IN 5
K OUT 0
K OUT 1
K OUT 2
GND
TALLY
K IN 1
UN REG GND
TO CS-33 BOARD(4/6)
(SERVO/SYSTEM CONTROL BLOCK)
(See Page 114, 116)
TO CS-33 BOARD (5/6) (AUDIO BLOCK)
(See Page 117)
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
CN509 0.5MM 12PIN ZIF
AUDIO R I/O
AUDIO L I/O
AUDIO GND (LINE)
VIDEO 4.9V
VIDEO OUT
VIDEO I/O GND
VIDEO I/O GND
VIDEO IN
S (Y) I/O
S (Y) I/O GND
S (C) I/O
S (C) I/O GND
F46
F35
F37
F29
F30
F31
F32
F40
F114
F33
SS GND
K IN 0
K IN 2
K IN 6
K OUT 0
K OUT 1
K OUT 2
LI 3V TO CK
BUZZER
K OUT 3
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
(See Page 144)
TO VI-113 BOARD
CN003
(FP-607 FLEXIBLE)
(See Page 114,
TO CS-33 BOARD SERVO/SYSTEM CONTROL BLOCK AND CS-33 BOARD (5/6) (AUDIO BLOCK)
TO CS-33 BO (SERVO/SYST CONTROL BL
(See Pag
TO CS-33 BOA (AUDIO BL
(See Pag
R622 0
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
TO CS-33 BOARD(5/6) (AUDIO BLOCK)
(See Page 120)
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
TO CS 33 BOARD(5/6) (AUDIO BLOCK)
(See Page 120)
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
TO CS-33 BOARD (5/6) (AUDIO BLOCK)
(See Page 120)
TO CS-33 BOARD (4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 115, 116)
PB RF OUT
REC C EVR
SS GND
RP PB MODE
RF SWP
JOG
FE ON
AU128
C199
G1
C128
AU16
AU31
F139
R997 0
R625 10k
CN503 6P L
RF 1'CH
PCM RF OUT
PB RF OUT
RF SWP
GND
REC 2
CHECK PIN
R626 1k
R635 1k
R628 1k
R629 1k
R630 1k
R631 1k
R632 1k
R633 1k
R634 1k
CN501 19P ZIF
PCM RF OUT
REC C EVR
REC Y RF
REC MIX RF OUT
RP PB MODE
E*MP
RF SWP
VIDEO GND
RF GND
PB RF 1'CH
PB RF OUT
REC 2
VIDEO 4.9V
VIDEO 4.9V
JOG
MT 1'CH EVR
H CHG
ME/HP
FE ON
TO RP-138 BOARD
W902
(FP-554 FLEXIBLE)
(See Page 128)
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 114)
TO CS-33 BOARD(5/6) (AUDIO BLOCK)
(See Page 120)
TO CS-33 BOARD(4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 116)
TO CS-33 BOARD(5 (AUDIO BLOCK)
(See Page 120
(G-6) Q983 GAIN SWITCH
R5030 0
L981 10µH
CL981
Q983 UN5113
(F-5) Q984 MIX AMP
C981 10 16V
C982 0.1 F
R983 15k
Q982 2SC4116
R985 3900
R986 1k
C984 0.01 B
Q984 2SC4116
CL982
R982 1k
C983 0.01 B
R984 10k
R987 820
C985 0.01 B
C986 0.01 B
R988 820
C987 0.01 B
R989 680
R992 8200
R994 3900
R993 5.6k
Q986 UN5213
R996 10k
Q988 UN521
(G-6) Q982 BUFFER
R991 0
Q986, 988 SWITCH

CS-33 BOA
(CONNECTOR B


(See Page 114, 115, 116)
TO CS-33 BOARD (4/6) SERVO/SYSTEM CONTROL BLOCK AND CS-33 BOARD (5/6) (AUDIO BLOCK)
CN506 28P B TO B
28 SCK
27 DATA TO SLVE
26 VIDEO DA CS
25 VIDEO CS
24 CAP ON
23 DATA TO V D/A
22 VIDEO 4.9V
21 VIDEO 4.9V
20 N.C
19 EC VIDEO OUT
18 VIDEO GND
17 VIDEO GND
16 E/L
15 E/L DET
14 E*MP
13 E*ME
12 ME/MP
11 ZOOM S EVR
10 V MUTE
9 ZOOM M EVR
8 V OUT SW
7 V IN SW
6 VTR SYNC
5 SYNC DET
4 H CHG
3 VI SWP
2 JOG VD
1 N.C
TO VI-113 BOARD CN001
(See Page 141, 142)
TO CS-33 BOARD (4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 115, 116)
TO CS-33 BOARD (5/6) (AUDIO BLOCK)
(See Page 120)
CL557
CL674
CL675
CL581
CL676
CL677
CL678
CL679
ZM1
ZM2
CN507 40P B TO B
40 N.C
39 N.C
38 EDIT
37 MT 1'CH EVR
36 COMP REC
35 S IN
34 PB RF OUT
33 VA PB MODE
32 RF GND
31 RF GND
30 REC C RF
29 VIDEO IN/OUT
28 REC Y RF
27 JOG
26 DS ON
25 SP/LP
24 DDS VDW
23 CAM/LINE
22 DDS VDB
21 DS VDW
20 PB TITLE C
19 DS VDB
18 TITLE TIMING
17 EVF OUT
16 TITLE EDGE
15 N.C.
14 AFC H
13 N.C.
12 CAM C
11 1/2Fh
10 CAM GND
9 VIDEO I/O GND
8 CAM Y
7 N.C.
6 Y CHK
5 AUDIO I/O GND
4 BACKUP VDD
3 AUDIO R I/O
2 CAM FSC
1 AUDIO L I/O
TO VI-113 BOARD CN002
(See Page 142)
TO CS-33 BOARD (4/6) (SERVO/SYSTEM CONTROL BLOCK)
(See Page 115, 116)
TO CS-33 BOARD (5/6) (AUDIO BLOCK)
(See Page 120)
L5006 1µH
CAM
(F-5) Q984 MIX AMP
Q986, 988 SWITCH
Q986 UN5213
Q988 UN5213
R992 8200
R993 5.6k
R994 3900
R996 10k
R989 680
R991 0
C987 0.01 B
C986 0.01
4.9

CS-33 BOARD (6/6)
(CONNECTOR BLOCK)

no mark : VTR REC/PB mode
( ) : VTR REC mode
( ) : VTR REC mode

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡›	➡››	➡
PB	⇨	⇨›	⇨››	⇨

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)		⋙	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		⫸››	
Ref. signal	➤		▷

RP-138 (REC/PB HEAD AMP) PRINTED WIRING BOARD

— Ref. No. RP-138 BOARD: 2000 series —

< DIODE >

D901	8-719-404-46	DIODE	MA110
D902	8-719-404-46	DIODE	MA110

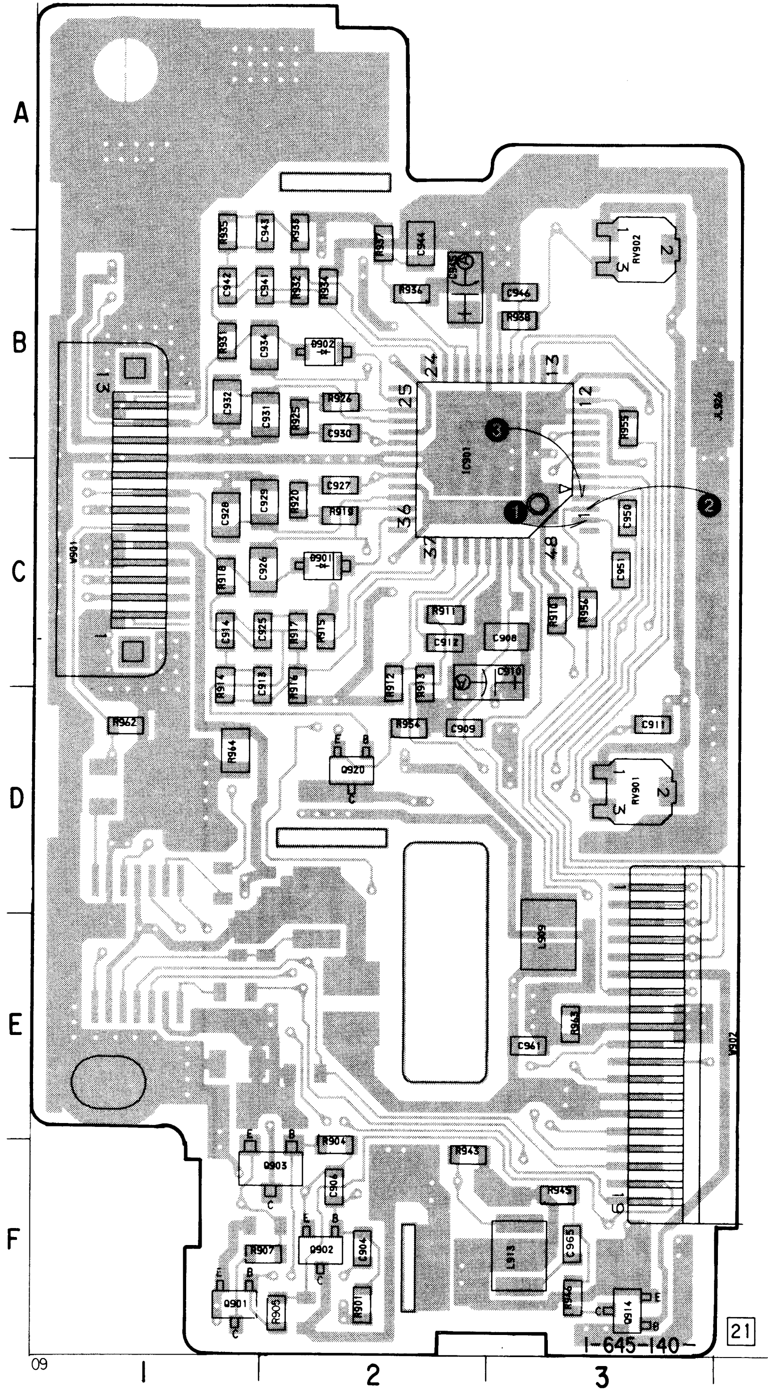
< IC >

IC901	8-752-033-00	IC	CXA1234AR

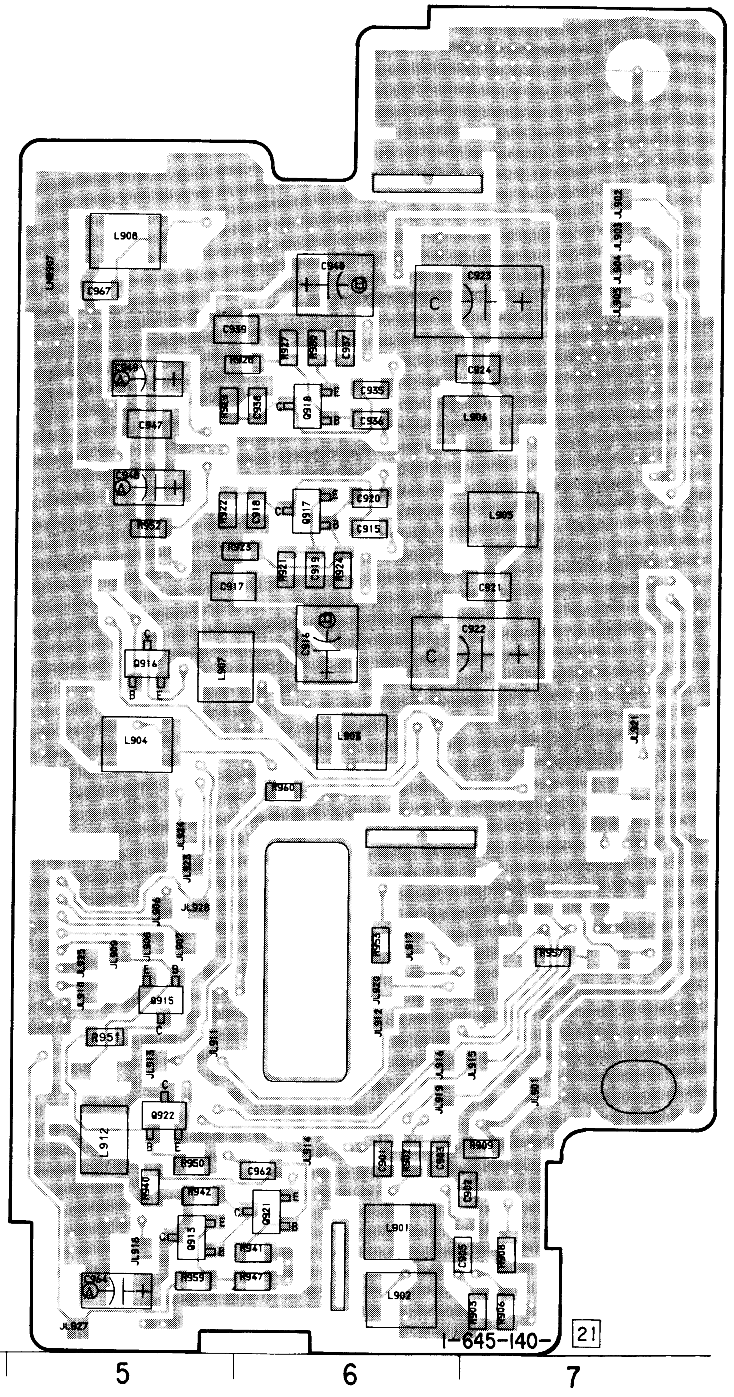
< TRANSISTOR >

Q901	8-729-905-23	TRANSISTOR	2SA1576-R
Q902	8-729-905-23	TRANSISTOR	2SA1576-R
Q903	8-729-216-22	TRANSISTOR	2SA1162
Q913	8-729-230-63	TRANSISTOR	2SC4116-YG
Q914	8-729-402-42	TRANSISTOR	UN5213
Q915	8-729-402-42	TRANSISTOR	UN5213
Q916	8-729-402-42	TRANSISTOR	UN5213
Q917	8-729-117-73	TRANSISTOR	2SC4178-F14
Q918	8-729-117-73	TRANSISTOR	2SC4178-F14
Q920	8-729-230-63	TRANSISTOR	2SC4116-YG
Q921	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q922	8-729-420-24	TRANSISTOR	2SB1218A-QRS

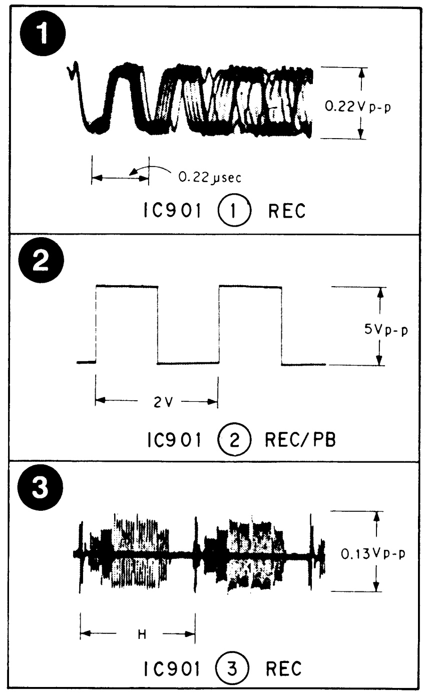
RP-138 BOARD (COMPONENT SIDE)



RP-138 BOARD (CONDUCTOR SIDE)



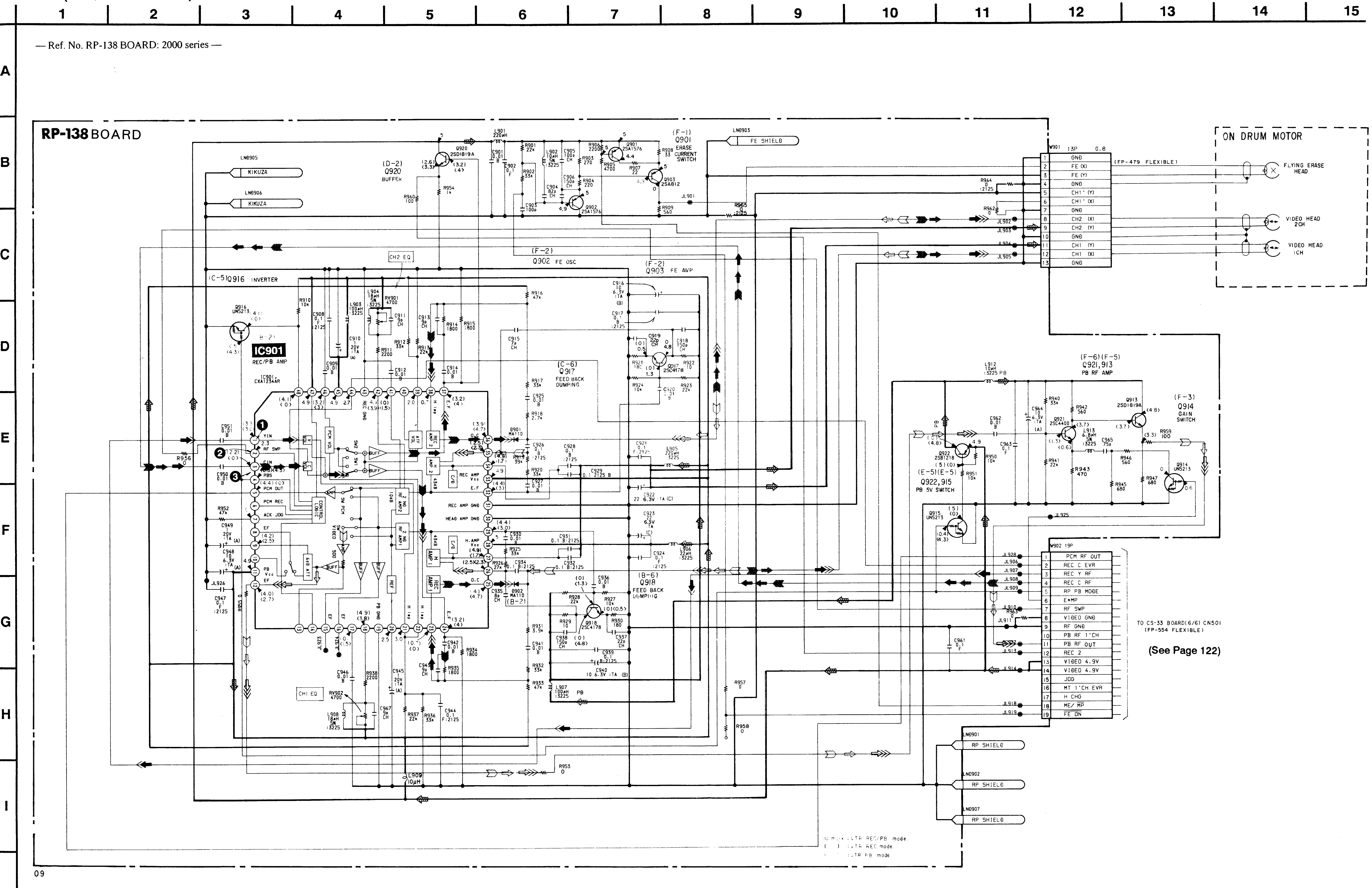
RP-138 BOARD



	CHROMA	Y	Y/CHROMA	SIGNAL
REC	➡	➡	➡	➡
PB			⇨	⇨

Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal	➡		▷

RP-138 (REC/PB HEAD AMP) SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
— Ref. No. RP-138 BOARD: 2000 series —
RP-138 BOARD
LN0905
KIKUZA
LN0906
KIKUZA
(D-2)
Q920
BUFFER
Q920
2SD1819A
L901
220μH
(F-1)
Q901
ERASE
CURRENT
SWITCH
Q901
2SA1576
Q902
2SA1576
Q903
2SA812
LN0903
FE SHIELD
(F-2)
Q902 FE OSC
(F-2)
Q903 FE AMP
CH2 EQ
(C-5) Q916 INVERTER
Q916
UN5213
IC901
REC/PB AMP
IC901
CXA1234AR
RV901
4700
(C-6)
Q917
FEED BACK
DUMPING
Q917
2SC4178
YIN
RF SWP
CIN
PBS
PCM OUT
PCM REC
ACK JOG
EF
PB Vcc
EF
PCM VOL
CONTROL LOGIC
BUFF
REC AMP GND
HEAD AMP GND
REC AMP Vcc
H.AMP Vcc
D901
MA110
D902
MA110
(B-6)
Q918
FEED BACK
DUMPING
Q918
2SC4178
CH1 EQ
RV902
4700
L909
10μH
R953
0
CN901 13P 0.8
GND
FE (X)
FE (Y)
GND
CH1' (Y)
CH1' (X)
GND
CH2 (X)
CH2 (Y)
GND
CH1 (Y)
CH1 (X)
GND
(FP-479 FLEXIBLE)
ON DRUM MOTOR
FLYING ERASE HEAD
VIDEO HEAD 2CH
VIDEO HEAD 1CH
(F-6)(F-5)
Q921,913
PB RF AMP
Q913
2SD1819A
Q921
2SC4400
(F-3)
Q914
GAIN
SWITCH
Q914
UN5213
Q922
2SB1218
(E-5)(E-5)
Q922,915
PB 5V SWITCH
Q915
UN5213
CN902 19P
PCM RF OUT
REC C EVR
REC Y RF
REC C RF
RP PB MODE
E*MP
RF SWP
VIDEO GND
RF GND
PB RF 1'CH
PB RF OUT
REC 2
VIDEO 4.9V
VIDEO 4.9V
JOG
MT 1'CH EVR
H CHG
ME/MP
FE ON
TO CS-33 BOARD(6/6) CN501
(FP-554 FLEXIBLE)
(See Page 122)
LN0901
RP SHIELD
LN0902
RP SHIELD
LN0907
RP SHIELD
09

< DIODE >

D001	8-719-404-46	DIODE	MA110
D002	8-719-404-35	DIODE	MA141WK
D003	8-719-404-35	DIODE	MA141WK
D006	8-719-404-35	DIODE	MA141WK
D007	8-719-404-46	DIODE	MA110
D008	8-719-404-35	DIODE	MA141WK
D009	8-719-404-46	DIODE	MA110
D010	8-719-404-35	DIODE	MA141WK
D011	8-719-404-35	DIODE	MA141WK
D012	8-719-404-46	DIODE	MA110
D101	8-719-404-46	DIODE	MA110
D103	8-719-404-46	DIODE	MA110
D162	8-719-404-35	DIODE	MA141WK
D202	8-719-404-35	DIODE	MA141WK
D203	8-719-820-05	DIODE	1SS181
D204	8-719-820-05	DIODE	1SS181
D205	8-719-404-35	DIODE	MA141WK
D206	8-719-404-46	DIODE	MA110
D207	8-719-404-46	DIODE	MA110
D208	8-719-404-35	DIODE	MA141WK
D354	8-719-940-45	DIODE	DWA010
D371	8-719-404-35	DIODE	MA141WK
D372	8-719-404-35	DIODE	MA141WK

< IC >

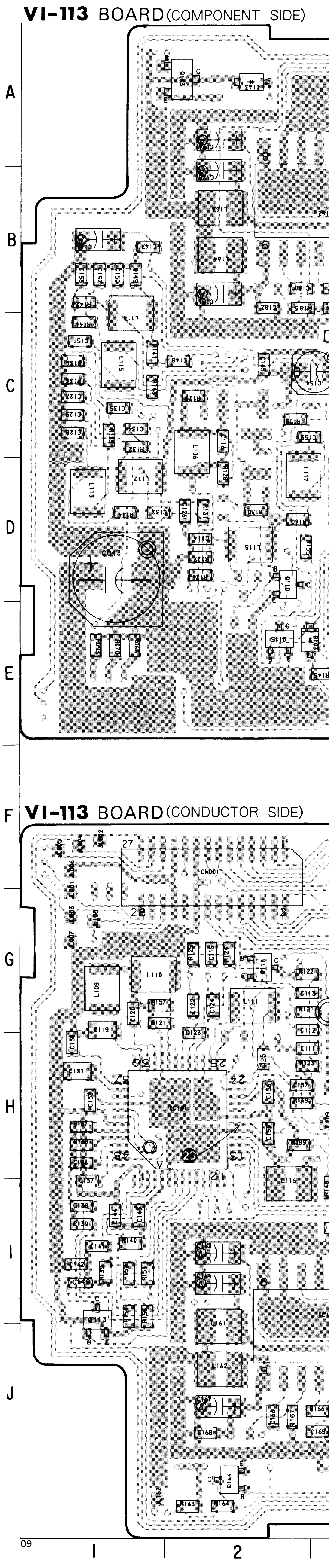
IC001	8-759-038-83	IC	MC13400FU
IC002	8-759-061-70	IC	MB86168PFV-ER
IC003	8-759-710-29	IC	NJM2235M
IC005	8-759-710-07	IC	NJM2234M
IC008	8-759-635-27	IC	M62352GP
IC101	8-752-058-02	IC	CXA1509AR
IC102	8-759-009-10	IC	MC14069UBF
IC161	8-752-333-24	IC	CXL1506M
IC162	8-752-333-24	IC	CXL1506M
IC201	8-752-065-54	IC	CXA1207AR-T6
IC202	8-759-636-33	IC	CXA1452N
IC203	8-752-053-21	IC	CXA1211M
IC204	8-759-710-29	IC	NJM2235M
IC301	8-752-051-40	IC	CXA1208R-T4
IC302	8-752-053-21	IC	CXA1211M
IC371	8-752-605-61	IC	CXA1203N-T4

< TRANSISTOR >

Q003	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q005	8-729-230-63	TRANSISTOR	2SC4116-YG
Q006	8-729-015-74	TRANSISTOR	UN5111-TX
Q007	8-729-422-54	TRANSISTOR	XN4215
Q008	8-729-420-24	TRANSISTOR	2SB1218A-QRS
Q009	8-729-402-42	TRANSISTOR	UN5213
Q010	8-729-420-24	TRANSISTOR	2SB1218A-QRS
Q011	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q012	8-729-013-15	TRANSISTOR	2SC4909-TL
Q013	8-729-230-63	TRANSISTOR	2SC4116-YG
Q014	8-729-013-15	TRANSISTOR	2SC4909-TL
Q015	8-729-230-63	TRANSISTOR	2SC4116-YG
Q016	8-729-230-63	TRANSISTOR	2SC4116-YG
Q017	8-729-402-42	TRANSISTOR	UN5213
Q018	8-729-403-35	TRANSISTOR	UN5113
Q019	8-729-230-63	TRANSISTOR	2SC4116-YG
Q102	8-729-230-63	TRANSISTOR	2SC4116-YG
Q103	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q104	8-729-420-24	TRANSISTOR	2SB1218A-QRS
Q105	8-729-230-63	TRANSISTOR	2SC4116-YG
Q106	8-729-402-42	TRANSISTOR	UN5213
Q107	8-729-230-63	TRANSISTOR	2SC4116-YG
Q108	8-729-402-42	TRANSISTOR	UN5213
Q109	8-729-420-24	TRANSISTOR	2SB1218A-QRS
Q110	8-729-402-42	TRANSISTOR	UN5213
Q111	8-729-230-63	TRANSISTOR	2SC4116-YG
Q113	8-729-013-15	TRANSISTOR	2SC4909-TL
Q114	8-729-230-63	TRANSISTOR	2SC4116-YG
Q115	8-729-402-42	TRANSISTOR	UN5213
Q116	8-729-230-63	TRANSISTOR	2SC4116-YG
Q161	8-729-807-87	TRANSISTOR	2SB1295-UL6
Q162	8-729-402-42	TRANSISTOR	UN5213
Q163	8-729-807-87	TRANSISTOR	2SB1295-UL6
Q164	8-729-402-42	TRANSISTOR	UN5213
Q165	8-729-420-24	TRANSISTOR	2SB1218A-QRS
Q166	8-729-230-63	TRANSISTOR	2SC4116-YG
Q167	8-729-230-63	TRANSISTOR	2SC4116-YG
Q168	8-729-402-42	TRANSISTOR	UN5213
Q169	8-729-420-24	TRANSISTOR	2SB1218A-QRS
Q170	8-729-230-63	TRANSISTOR	2SC4116-YG
Q201	8-729-420-12	TRANSISTOR	XN4213
Q202	8-729-420-20	TRANSISTOR	XN4312
Q203	8-729-402-42	TRANSISTOR	UN5213
Q204	8-729-403-35	TRANSISTOR	UN5113
Q206	8-729-402-42	TRANSISTOR	UN5213
Q208	8-729-420-24	TRANSISTOR	2SB1218A-QRS
Q209	8-729-403-35	TRANSISTOR	UN5113
Q211	8-729-403-06	TRANSISTOR	XN1113
Q212	8-729-402-42	TRANSISTOR	UN5213
Q213	8-729-402-42	TRANSISTOR	UN5213
Q214	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q215	8-729-824-02	TRANSISTOR	2SA1838
Q216	8-729-402-42	TRANSISTOR	UN5213
Q217	8-729-230-63	TRANSISTOR	2SC4116-YG
Q220	8-729-230-63	TRANSISTOR	2SC4116-YG
Q221	8-729-402-42	TRANSISTOR	UN5213
Q222	8-729-823-16	TRANSISTOR	2SC4555-5. 6. 7
Q223	8-729-823-16	TRANSISTOR	2SC4555-5. 6. 7
Q224	8-729-402-42	TRANSISTOR	UN5213
Q225	8-729-402-42	TRANSISTOR	UN5213
Q226	8-729-402-42	TRANSISTOR	UN5213
Q227	8-729-403-35	TRANSISTOR	UN5113
Q228	8-729-402-42	TRANSISTOR	UN5213
Q229	8-729-402-42	TRANSISTOR	UN5213
Q230	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q231	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q232	8-729-402-81	TRANSISTOR	XN4501
Q233	8-729-230-63	TRANSISTOR	2SC4116-YG
Q234	8-729-230-63	TRANSISTOR	2SC4116-YG
Q235	8-729-403-35	TRANSISTOR	UN5113
Q237	8-729-402-42	TRANSISTOR	UN5213
Q238	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q239	8-729-015-74	TRANSISTOR	UN5111-TX
Q240	8-729-420-24	TRANSISTOR	2SB1218A-QRS
Q241	8-729-402-42	TRANSISTOR	UN5213
Q243	8-729-402-42	TRANSISTOR	UN5213
Q244	8-729-402-42	TRANSISTOR	UN5213
Q247	8-729-402-42	TRANSISTOR	UN5213
Q302	8-729-230-63	TRANSISTOR	2SC4116-YG
Q305	8-729-420-24	TRANSISTOR	2SB1218A-QRS
Q306	8-729-230-63	TRANSISTOR	2SC4116-YG
Q307	8-729-230-63	TRANSISTOR	2SC4116-YG
Q308	8-729-230-63	TRANSISTOR	2SC4116-YG
Q309	8-729-403-35	TRANSISTOR	UN5113
Q310	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q311	8-729-402-42	TRANSISTOR	UN5213
Q313	8-729-402-42	TRANSISTOR	UN5213
Q314	8-729-402-42	TRANSISTOR	UN5213
Q371	8-729-403-35	TRANSISTOR	UN5113
Q372	8-729-402-42	TRANSISTOR	UN5213
Q373	8-729-230-63	TRANSISTOR	2SC4116-YG
Q374	8-729-230-63	TRANSISTOR	2SC4116-YG
Q375	8-729-230-63	TRANSISTOR	2SC4116-YG
Q376	8-729-402-42	TRANSISTOR	UN5213
Q377	8-729-402-42	TRANSISTOR	UN5213
Q378	8-729-403-35	TRANSISTOR	UN5113

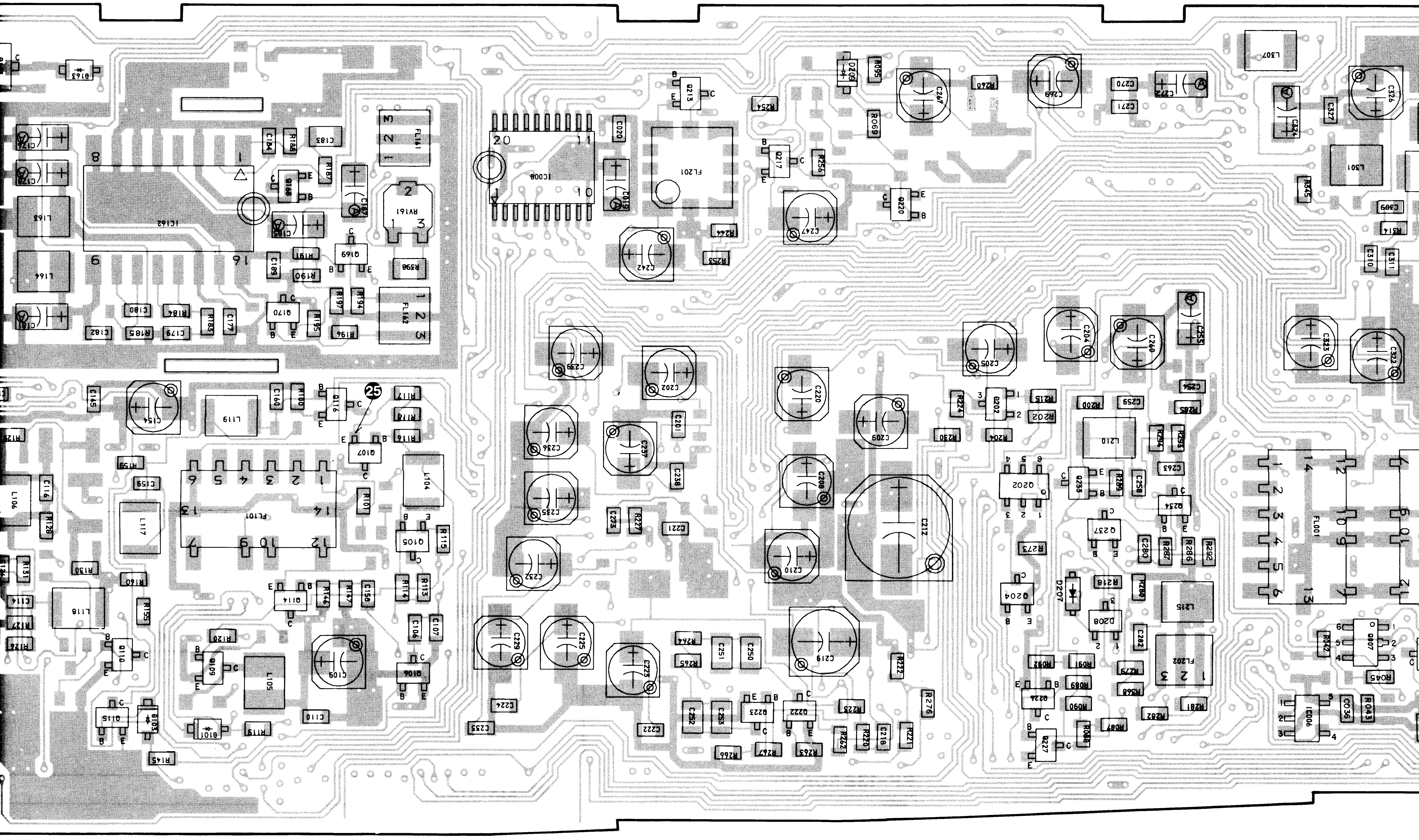
VI-113 (VIDEO) PRINTED WIRING BOARD

— Ref. No. VI-113 BOARD: 1000 series —


VI-113 BOARD (COMPONENT SIDE)

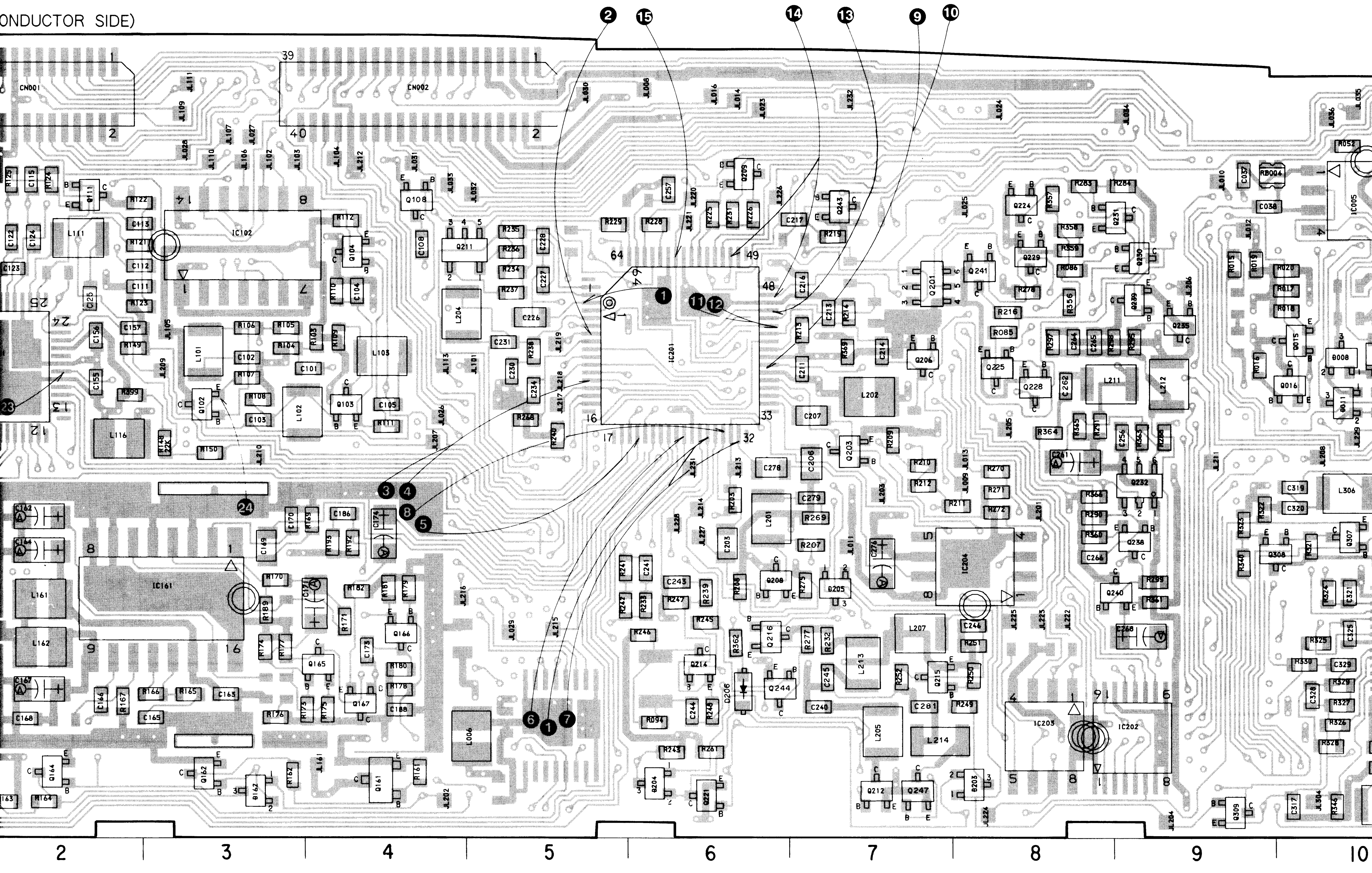
VI-113 BOARD (CONDUCTOR SIDE)

OMPONENT SIDE)



IC162
IC008
FL201
FL101
FL161
FL162
FL202
FL001
C212
RY161
L163
L164
L119
L117
L118
L105
L104
L210
L215
L301
L307
C154
C109
C219
25

ONDUCTOR SIDE)



2
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CN001
CN002
IC102
IC201
IC161
IC204
IC203
IC202
IC005
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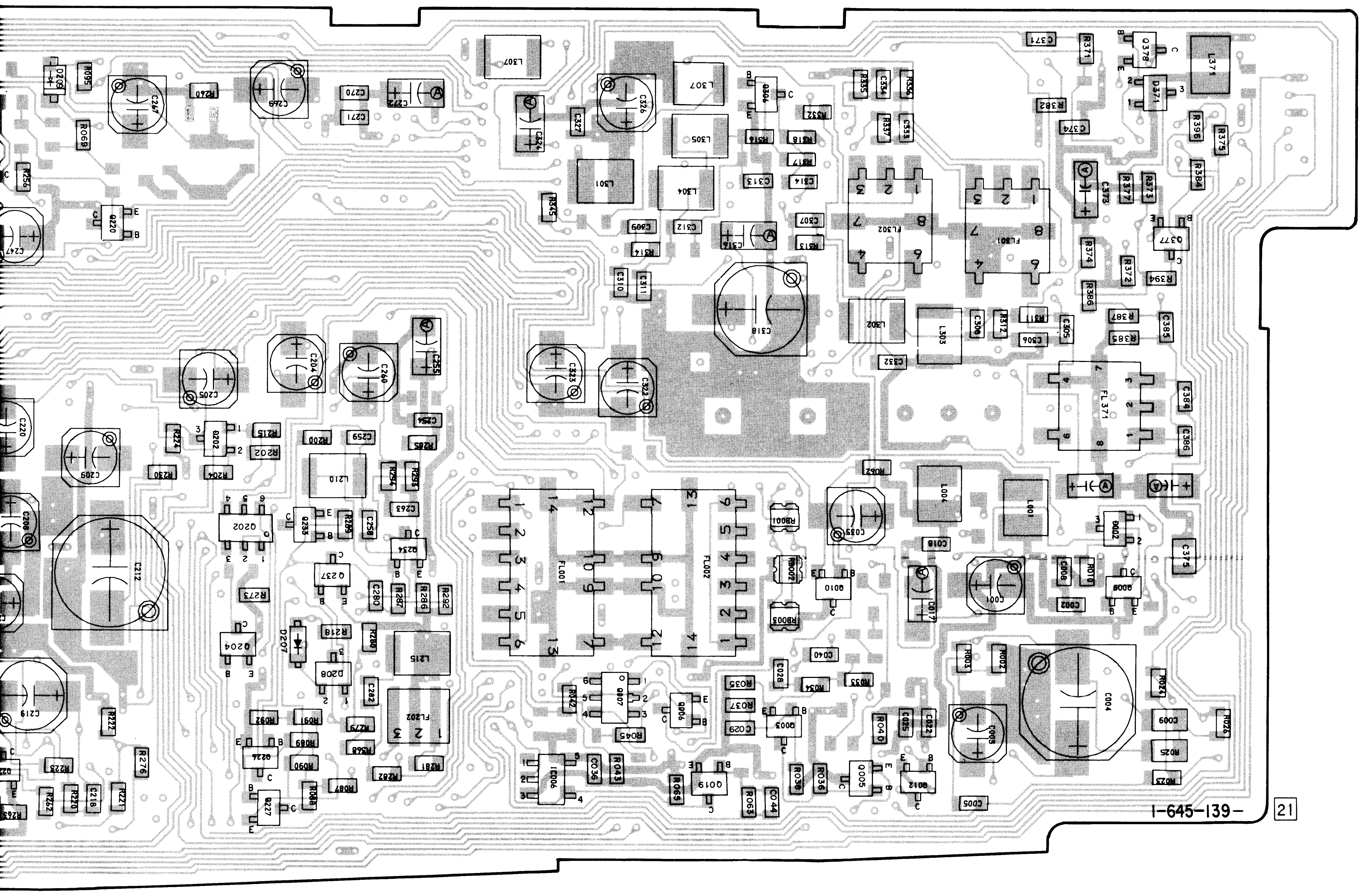
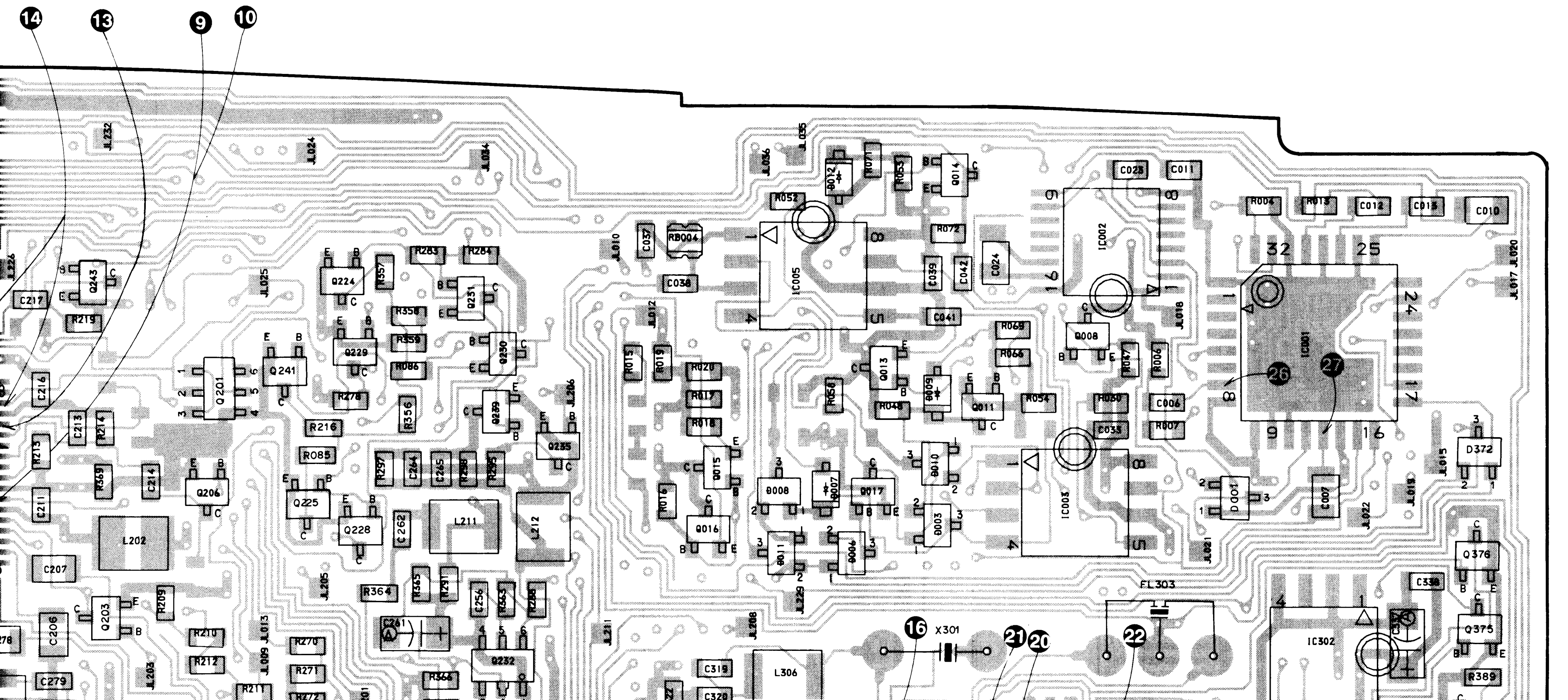

1-645-139-
21
FL001
FL002
FL202
FL301
FL302
FL371
C004
C212
C318
IC006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㉗
X301
FL303
IC001
IC002
IC003
IC005
IC202
IC203
IC204
IC301
IC302
IC371
1-645-139-
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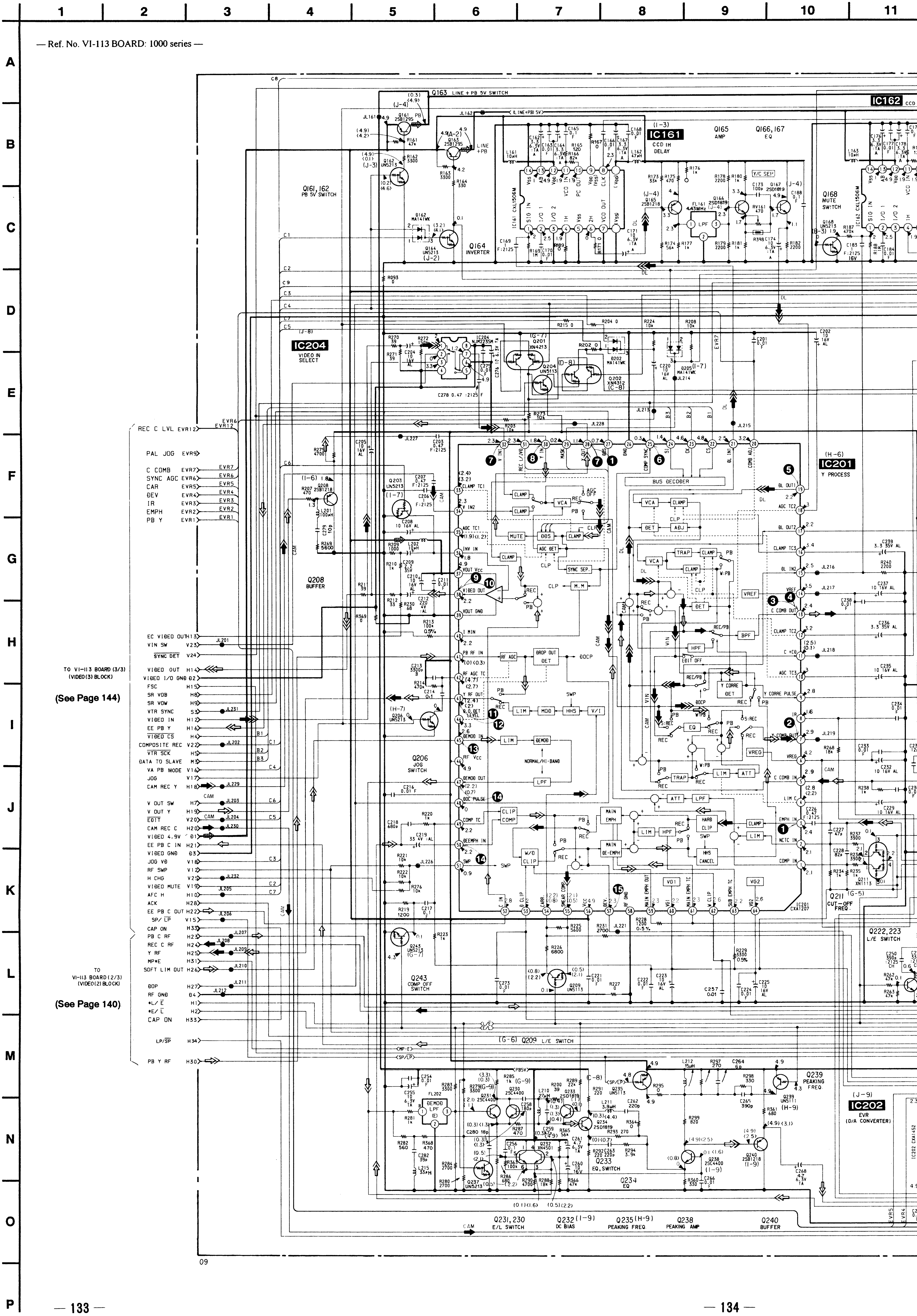
VI-113 (VIDEO) SCHEMATIC DIAGRAM

• Refer to page 129 for Printed Wiring Board.

— Ref. No. VI-113 BOARD: 1000 series —



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A
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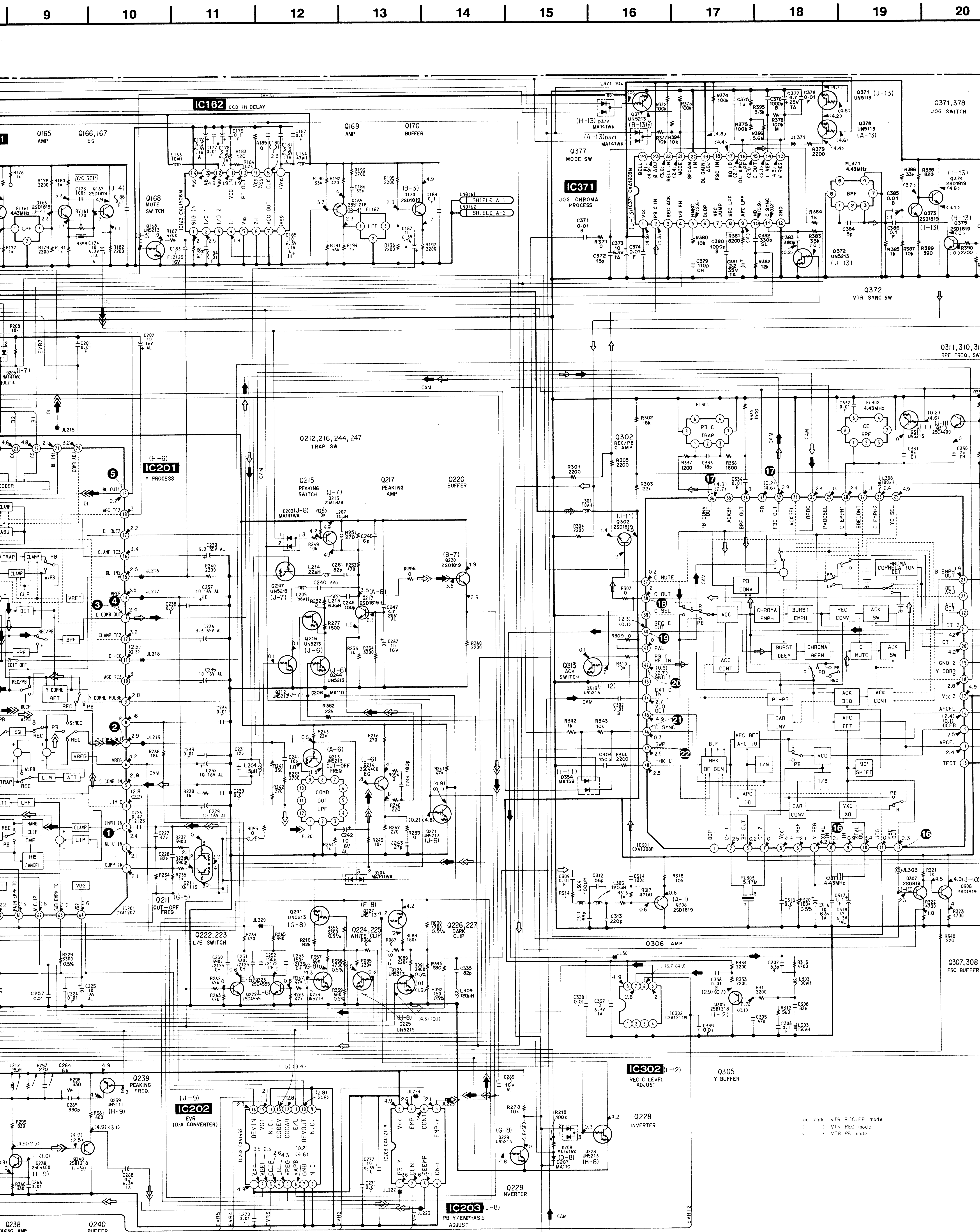
I
J
K
L
M
N
O
P
Q163 LINE + PB 5V SWITCH
IC161
CCD 1H DELAY
Q165 AMP
Q166, 167 EQ
IC162
Q161, 162 PB 5V SWITCH
Q164 INVERTER
Q168 MUTE SWITCH
IC204
VIDEO IN SELECT
Q201
Q202
Q204
Q205
IC201
Y PROCESS
BUS DECODER
Q208 BUFFER
Q206 JOG SWITCH
Q243 COMP OFF SWITCH
Q209 L/E SWITCH
Q211 CUT-OFF FREQ.
Q222, 223 L/E SWITCH
Q239 PEAKING FREQ.
IC202
EVR (D/A CONVERTER)
Q231, 230 E/L SWITCH
Q232 DC BIAS
Q235 PEAKING FREQ.
Q238 PEAKING AMP
Q240 BUFFER
Q233 EQ, SWITCH
Q234 EQ
REC C LVL EVR12
PAL JOG EVR9
C COMB EVR7
SYNC AGC EVR6
CAR EVR5
DEV EVR4
IR EVR3
EMPH EVR2
PB Y EVR1
EC VIDEO OUT H13
VIN SW V23
SYNC DET V24
VIDEO OUT H14
VIDEO I/O GND B2
FSC H15
SR VDB H8
SR VDW H9
VTR SYNC S3
VIDEO IN H12
EE PB Y H16
VIDEO CS H4
COMPOSITE REC V22
VTR SCK H5
DATA TO SLAVE H3
VA PB MODE V16
JOG V17
CAM REC Y H18
V OUT SW H7
V OUT Y H19
EDIT V20
CAM REC C H20
VIDEO 4.9V B1
EE PB C IN H21
VIDEO GND B3
JOG V0 V18
RF SWP V12
H CHG V25
VIDEO MUTE V19
AFC H H10
ACK H28
EE PB C OUT H22
SP/LP V15
CAP ON H33
PB C RF H23
REC C RF H24
Y RF H25
MP•E H31
SOFT LIM OUT H26
DOP H27
RF GND B4
•L/E H1
•E/L H2
CAP ON H33
LP/SP H34
PB Y RF H30
TO VI-113 BOARD (3/3) (VIDEO(3) BLOCK)
(See Page 144)
TO VI-113 BOARD (2/3) (VIDEO(2) BLOCK)
(See Page 140)


9
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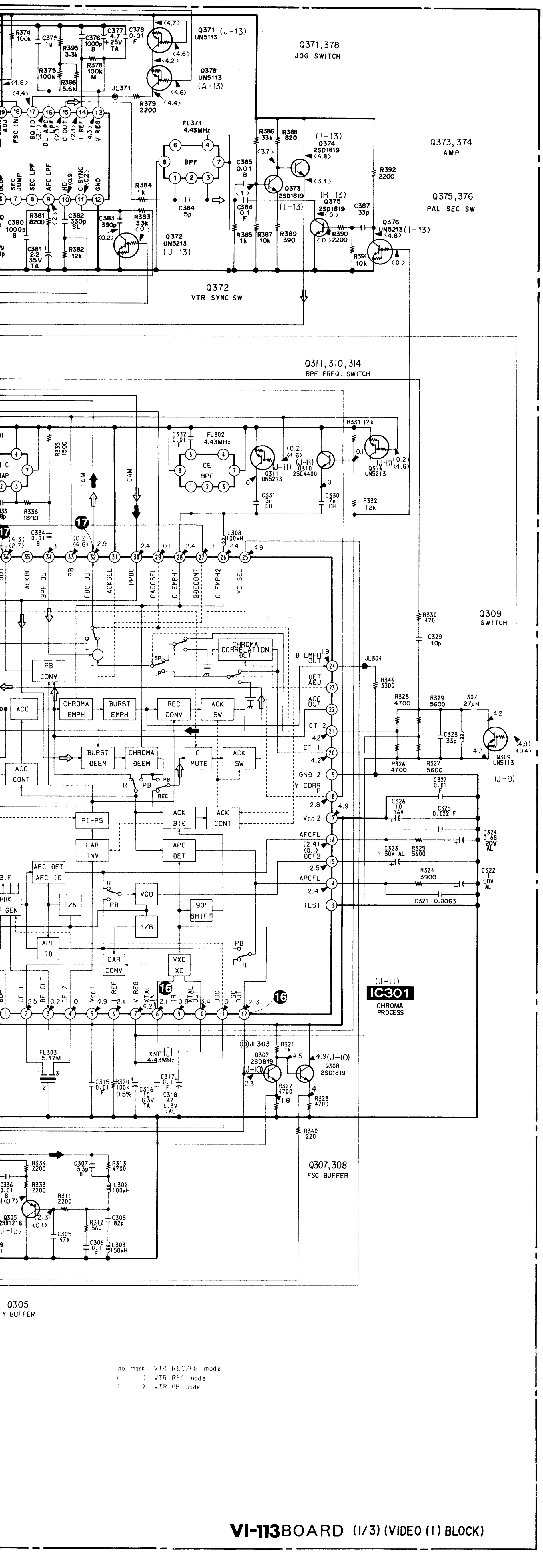
IC162 CCD 1H DELAY
Q165 AMP
Q166,167 EQ
Q168 MUTE SWITCH
Q169 AMP
Q170 BUFFER
Y/C SEP
SHIELD A-1
SHIELD A-2
Q377 MODE SW
IC371 JOG CHROMA PROCESS
Q371,378 JOG SWITCH
Q372 VTR SYNC SW
FL371 4.43MHz
BPF
Q311,310 BPF FREQ, SW
IC201 Y PROCESS
Q212,216,244,247 TRAP SW
Q215 PEAKING SWITCH
Q217 PEAKING AMP
Q220 BUFFER
Q302 REC/PB C AMP
FL301 PB C TRAP
CE BPF
Q313 ACK SWITCH
CHROMA CORRELATION DET
PB CONV
ACC
CHROMA EMPH
BURST EMPH
REC CONV
ACK SW
BURST DEEM
CHROMA DEEM
C MUTE
ACC CONT
ACK BID
ACK CONT
P1-PS
CAR INV
APC DET
AFC DET AFC 1 0
HHK BF GEN
1/N
VCO
1/8
90° SHIFT
APC 1 0
CAR CONV
VXO XO
IC301 CXA1208R
FL303 5.17M
X301 4.43MHz
Q306 AMP
Q307,308 FSC BUFFER
Q211 CUT-OFF FREQ.
Q222,223 L/E SWITCH
Q224,225 WHITE CLIP
Q226,227 DARK CLIP
Q213 CUT-OFF FREQ
Q214 EQ
COMB OUT LPF
FL201
IC302 CXA1211M
IC302 (I-12) REC C LEVEL ADJUST
Q305 Y BUFFER
Q239 PEAKING FREQ.
Q238 PEAKING AMP
Q240 BUFFER
IC202 EVR (D/A CONVERTER)
IC202 CXA1452
IC203 CXA1211M
IC203 (J-8) PB Y/EMPHASIS ADJUST
Q229 INVERTER
Q228 INVERTER
CAM
DL
no mark : VTR REC/PB mode
( ) : VTR REC mode
〈 〉 : VTR PB mode

VI-113BOARD


Q371,378
JOG SWITCH
Q373,374
AMP
Q375,376
PAL SEC SW
Q372
VTR SYNC SW
Q311,310,314
BPF FREQ. SWITCH
Q309
SWITCH
IC301
CHROMA PROCESS
Q307,308
FSC BUFFER
Q305
Y BUFFER

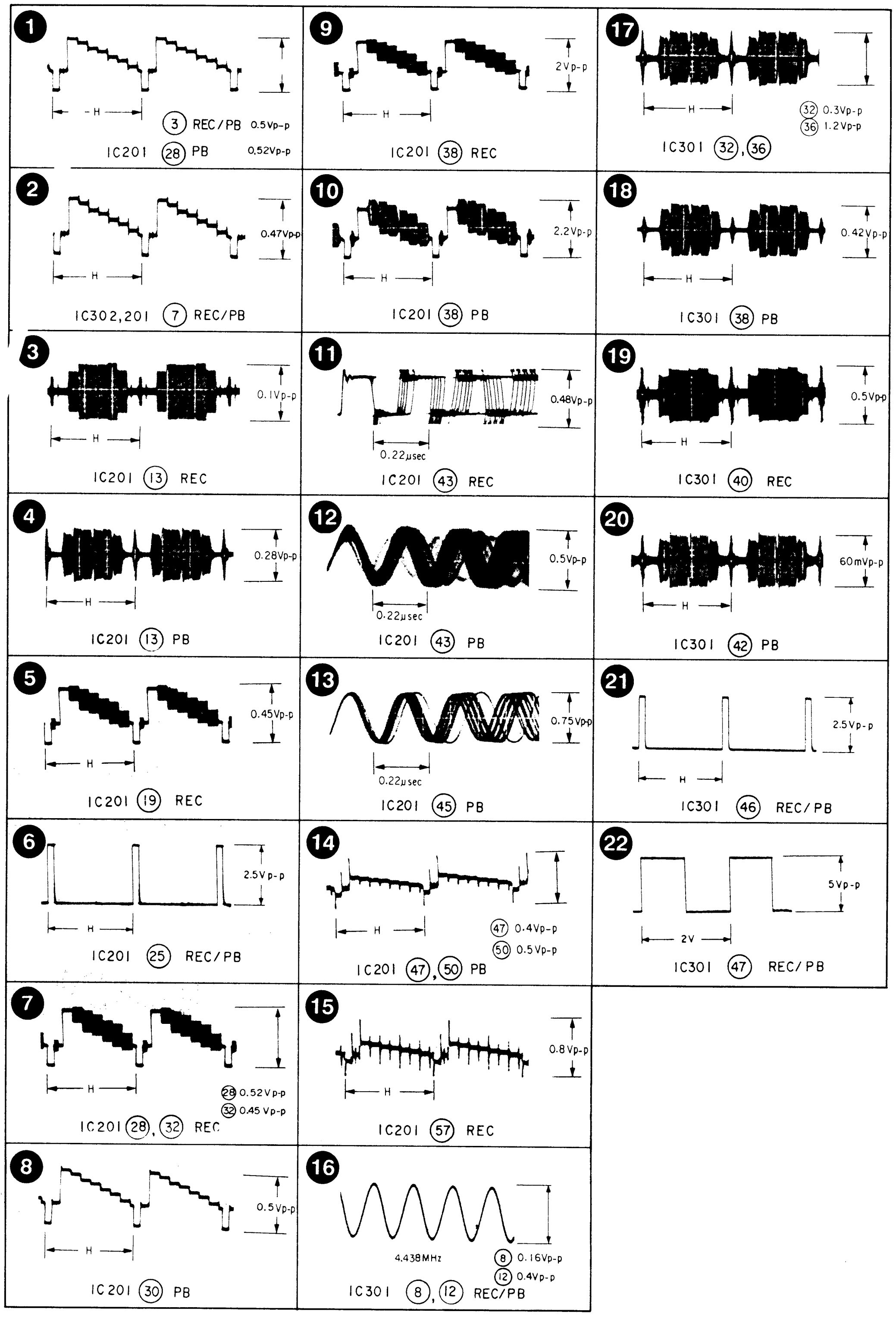
no mark VTR REC/PB mode
( ) VTR REC mode
< > VTR PB mode

VI-113BOARD (1/3) (VIDEO (1) BLOCK)

- **SIGNAL PATH**

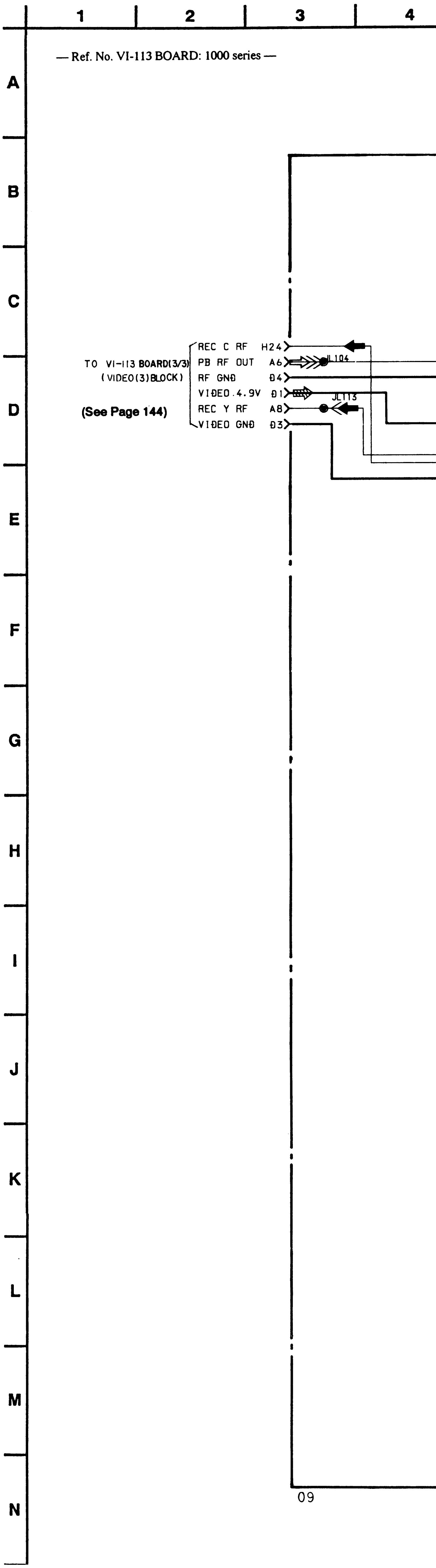
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	
PB	⇨	⇨≫	⇨⋙	

VI-113 BOARD (1/3)



VI-113 (VIDEO) SCHEMATIC DIAGRAM

• Refer to pag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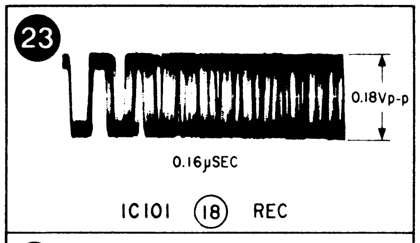
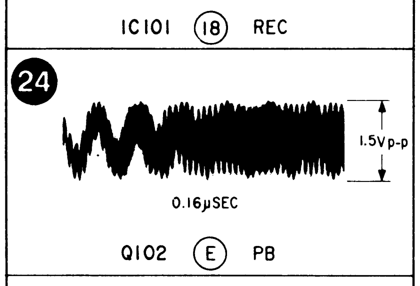
J
K
L
M
N
— Ref. No. VI-113 BOARD: 1000 series —
TO VI-113 BOARD(3/3)
(VIDEO(3)BLOCK)
(See Page 144)
REC C RF H24
PB RF OUT A6
RF GND D4
VIDEO.4.9V D1
REC Y RF A8
VIDEO GND D3
JL104
JL113
09

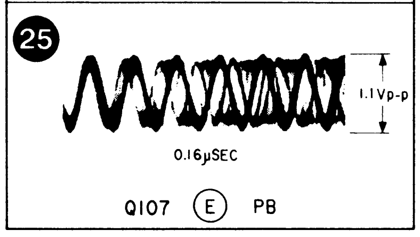
• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡>>		
PB	⇨	⇨>>	⇨>>>	

VI-113 BOARD (2/3)

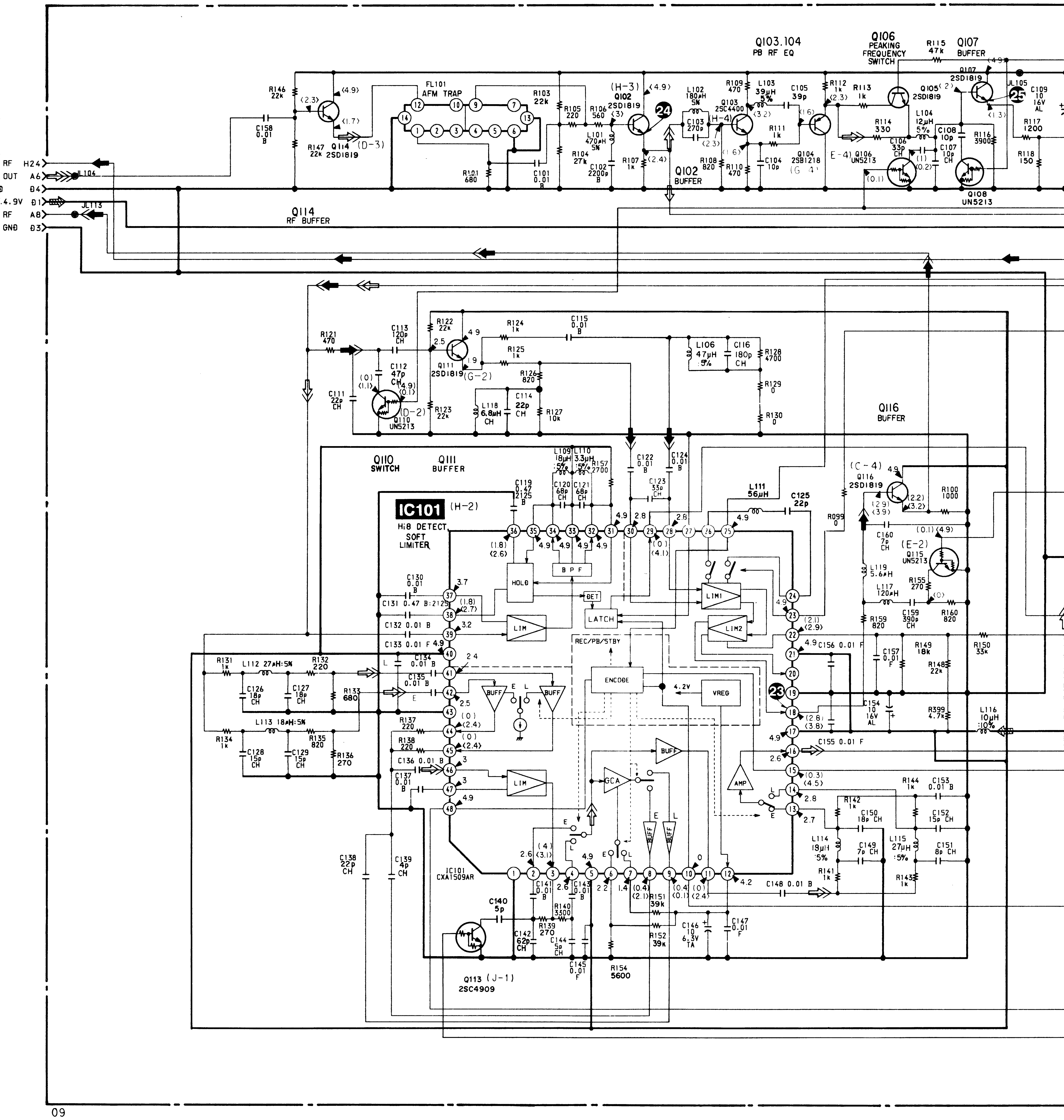


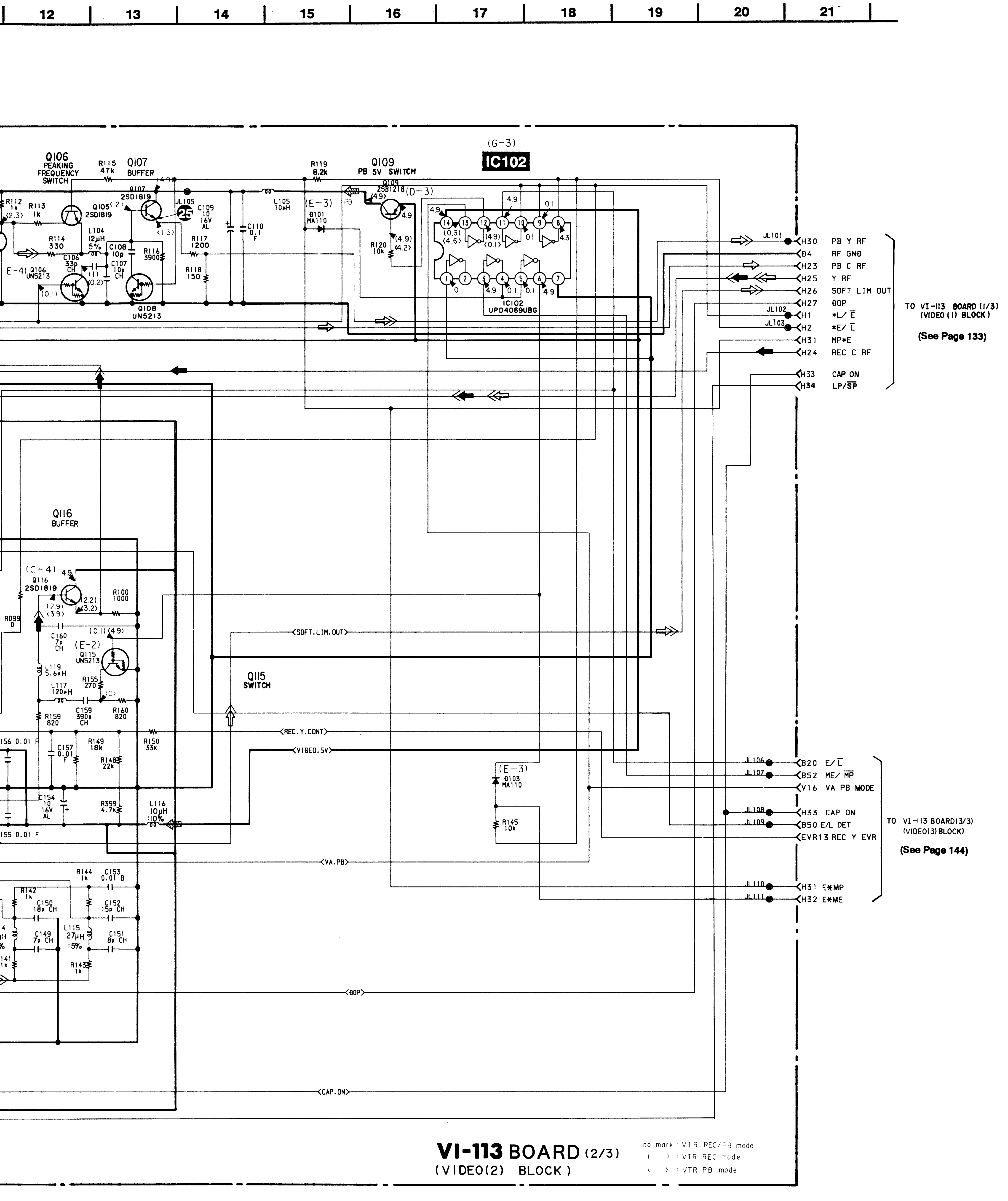




- Refer to page 129 for Printed Wiring Board.

series —


RF H24
OUT A6
Ð4
4.9V Ð1
RF A8
GNÐ Ð3
JL104
JL113
Q114
RF BUFFER
R146 22k
R147 22k
Q114 2SD1819
(D-3)
C158 0.01 B
FL101
AFM TRAP
R103 22k
R105 220
R101 680
C101 0.01 B
R106 560
R104 27k
L101 470μH 5%
C102 2200p B
R107 1k
(H-3)
Q102 2SD1819
Q102
BUFFER
L102 180μH 5%
C103 270p
Q103 2SC4400
(H-4)
R108 820
R110 470
R109 470
L103 39μH 5%
C105 39p
R111 1k
C104 10p
Q104 2SB1218
(G-4)
Q103.104
PB RF EQ
Q106
PEAKING FREQUENCY SWITCH
R112 1k
R113 1k
R114 330
(E-4) Q106 UN5213
C106 33p CH
Q105 2SD1819
L104 12μH 5%
C108 10p
C107 10p CH
R115 47k
Q107
BUFFER
Q107 2SD1819
JL105
C109 10 16V AL
R116 3900
R117 1200
R118 150
Q108 UN5213
R121 470
C111 22p CH
C113 120p CH
C112 47p CH
Q110 UN5213
(D-2)
R122 22k
R123 22k
Q111 2SD1819
(G-2)
R124 1k
R125 1k
C115 0.01 B
R126 820
L118 6.8μH CH
C114 22p CH
R127 10k
L106 47μH 5%
C116 180p CH
R128 4700
R129 0
R130 0
Q110
SWITCH
Q111
BUFFER
Q116
BUFFER
IC101 (H-2)
Hi8 DETECT SOFT LIMITER
C119 0.47 2125 B
L109 18μH 5%
L110 3.3μH 5%
R157 2700
C120 68p CH
C121 68p CH
C122 0.01 B
C123 33p CH
C124 0.01 B
L111 56μH
C125 22p
R099 0
(C-4) Q116 2SD1819
R100 1000
C160 7p CH
(E-2) Q115 UN5213
L119 5.6μH
L117 120μH
R155 270
R159 820
C159 390p CH
R160 820
R149 18k
R148 22k
R150 33k
C157 0.01 F
C154 10 16V AL
R399 4.7k
L116 10μH 10%
HOLD
BPF
DET
LATCH
LIM
LIM1
LIM2
REC/PB/STBY
ENCODE
VREG
4.2V
BUFF
GCA
AMP
C130 0.01
C131 0.47 B:2125
C132 0.01 B
C133 0.01 F
C134 0.01 B
C135 0.01 B
C136 0.01 B
C137 0.01 B
C156 0.01 F
C155 0.01 F
R131 1k
L112 27μH 5%
R132 220
C126 18p CH
C127 18p CH
R133 680
L113 18μH 5%
R134 1k
R135 820
C128 15p CH
C129 15p CH
R136 270
R137 220
R138 220
C138 22p CH
C139 4p CH
IC101 CXA1509AR
C140 5p
Q113 (J-1) 2SC4909
C141 0.01 B
C142 62p CH
C143 0.01 B
R139 270
R140 3300
C144 5p CH
C145 0.01 F
R151 39k
R152 39k
R154 5600
C146 10 6.3V TA
C147 0.01 F
C148 0.01 B
R144 1k
C153 0.01 B
R142 1k
C150 18p CH
C152 15p CH
L114 19μH 5%
C149 7p CH
L115 27μH 5%
C151 8p CH
R141 1k
R143 1k
24
25
23
09


12
13
14
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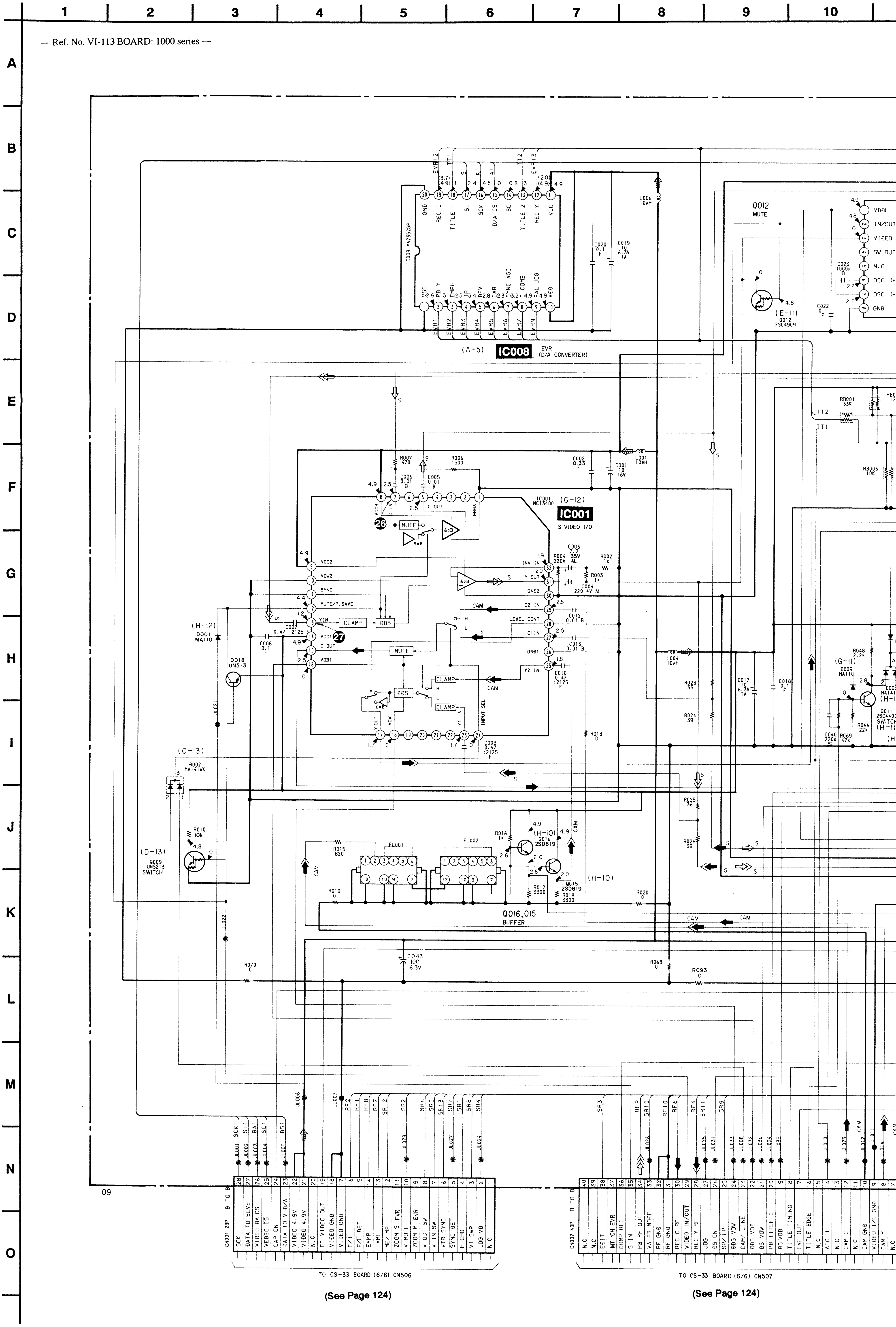
21
Q106 PEAKING FREQUENCY SWITCH
R115 47k
Q107 BUFFER
R119 8.2k
Q109 PB 5V SWITCH
(G-3)
IC102
Q107 2SD1819
Q105 2SD1819
JL105
C109 10 16V AL
C110 0.1 F
L105 10μH
(E-3) D101 MA110
Q109 2SB1218 (D-3)
R112 1k
R113 1k
L104 12μH 5%
R114 330
C106 33p CH
C108 10p
C107 10p CH
R116 3900
R117 1200
R118 150
E-4) Q106 UN5213
Q108 UN5213
R120 10k
IC102 UPD4069UBG
JL101
JL102
JL103
H30 PB Y RF
D4 RF GND
H23 PB C RF
H25 Y RF
H26 SOFT LIM OUT
H27 DOP
H1 *L/E
H2 *E/L
H31 MP*E
H24 REC C RF
H33 CAP ON
H34 LP/SP
TO VI-113 BOARD (1/3) (VIDEO (1) BLOCK)
(See Page 133)
Q116 BUFFER
(C-4) Q116 2SD1819
R100 1000
R099 0
C160 7p CH
(E-2) Q115 UN5213
L119 5.6μH
L117 120μH
R155 270
C159 390p CH
R160 820
R159 820
Q115 SWITCH
<SOFT.LIM.OUT>
<REC.Y.CONT>
<VIDEO.5V>
<VA.PB>
<DOP>
<CAP.ON>
156 0.01 F
C157 0.01 F
R149 18k
R148 22k
R150 33k
C154 10 16V AL
R399 4.7k
L116 10μH ±10%
155 0.01 F
(E-3) D103 MA110
R145 10k
JL106
JL107
JL108
JL109
JL110
JL111
B20 E/L
B52 ME/MP
V16 VA PB MODE
H33 CAP ON
B50 E/L DET
EVR13 REC Y EVR
H31 E*MP
H32 E*ME
TO VI-113 BOARD(3/3) (VIDEO(3) BLOCK)
(See Page 144)
R144 1k
C153 0.01 B
R142 1k
C150 18p CH
C152 15p CH
C149 7p CH
L115 27μH ±5%
C151 8p CH
R141 1k
R143 1k

VI-113 BOARD (2/3)
(VIDEO(2) BLOCK)

no mark : VTR REC/PB mode
( ) : VTR REC mode
‹ › : VTR PB mode

VI-113 (VIDEO) SCHEMATIC DIAGRAM

• Refer to page 129 for Printed Wiring Board.



— Ref. No. VI-113 BOARD: 1000 series —

(See Page 124)

(See Page 124)

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A
B
C
D
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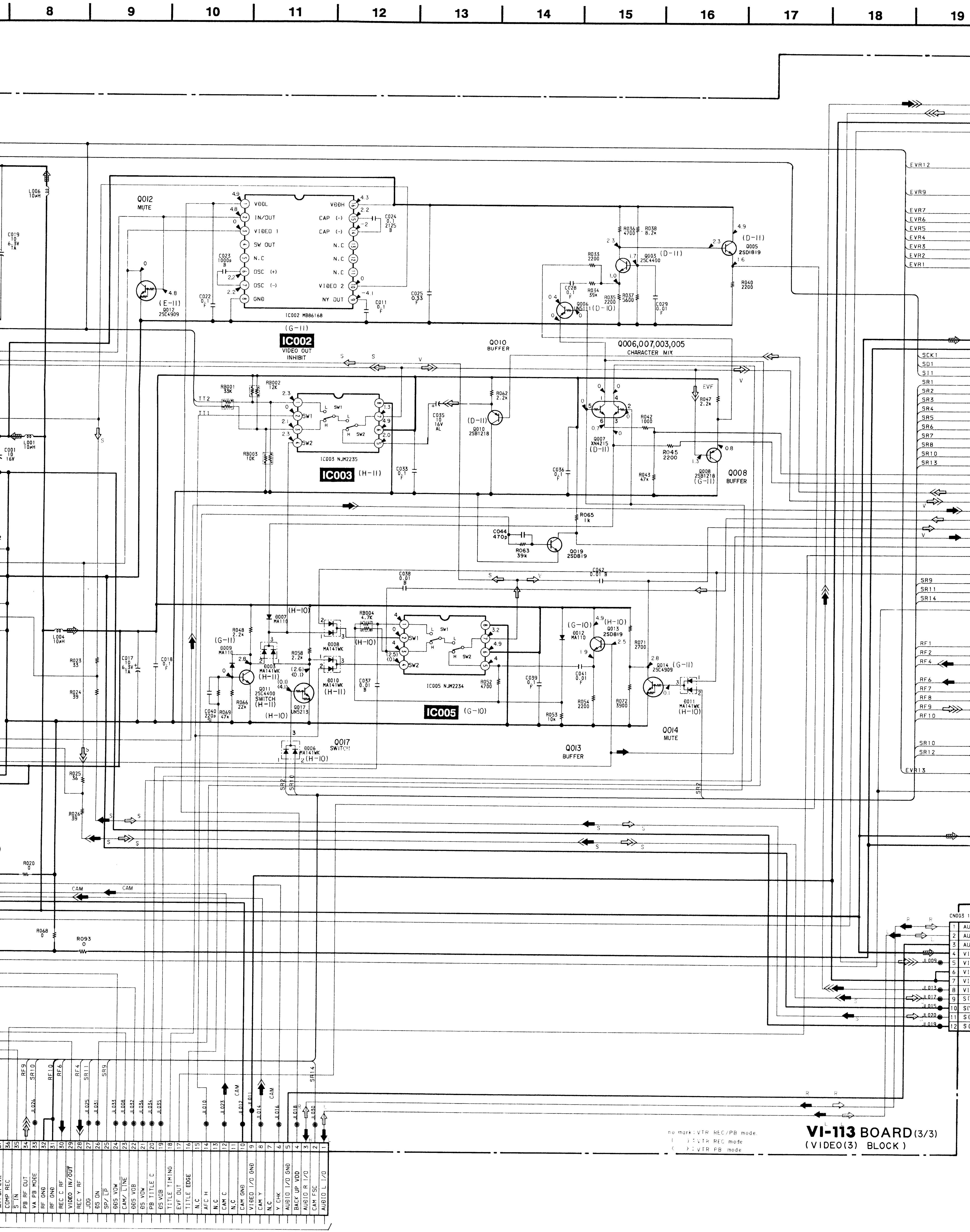
F
G
H
I
J
K
L
M
N
O
IC008 EVR (D/A CONVERTER)
IC008 M62352GP
(A-5)
GND
REC C
TITLE 1
SI
SCK
D/A CS
SO
TITLE 2
REC Y
VCC
VSS
PB Y
EMPH
IR
DEV
CAR
SYNC AGC
COMB
PAL JOG
VDD
EVR1
EVR2
EVR3
EVR4
EVR5
EVR6
EVR7
EVR9
EVR12
EVR13
TT1
TT2
L006 10μH
C020 0.1 F
C019 10 6.3V TA
Q012 MUTE
Q012 2SC4909
(E-11)
C023 1000p B
C022 0.1 F
VDDL
IN/OUT
VIDEO
SW OUT
N.C
OSC
GND
RB001 33K
RB003 10K
IC001 MC13400
(G-12)
IC001 S VIDEO I/O
R007 470
R006 1500
C006 0.01 B
C005 0.01 B
C002 0.33 F
C001 10 16V
L001 10μH
VCC3
C IN
C OUT
GND3
MUTE
9dB
6dB
VCC2
VDW2
SYNC
MUTE/P.SAVE
Y IN
CLAMP
DDS
VCC1
C OUT
VDB1
INV IN
Y OUT
GND2
C2 IN
LEVEL CONT
C1 IN
GND1
Y2 IN
INPUT SEL
Y OUT1
VDW1
Y1 IN
CAM
R004 220k
C003 2.2 35V AL
R002 1k
R003 1k
C004 220 4V AL
C012 0.01 B
C013 0.01 B
C010 0.47 :2125 F
C009 0.47 :2125 F
C007 0.47 :2125 F
C008 0.1 F
R013 0
L004 10μH
R023 33
R024 39
C017 10 6.3V TA
C018 0.1 F
R025 36
R026 39
(H-12)
D001 MA110
Q018 UN513
(C-13)
D002 MA141WK
R010 10k
(D-13)
Q009 UN5213 SWITCH
JL021
JL022
R015 820
FL001
FL002
R019 0
R016 1k
Q016 2SD819
(H-10)
Q015 2SD819
R017 3300
R018 3300
R020 0
Q016,015 BUFFER
R048 2.2k
(G-11)
D009 MA110
D003 MA141
Q011 2SC4400 SWITCH
R066 22k
C040 220p
R069 47k
C043 100 6.3V
R070 0
R068 0
R093 0
JL001 SCK1
JL002 SI1
JL003 BA1
JL004 SO1
JL005 BS1
JL006
JL007
RF2
RF1
RF8
RF7
SR12
SR2
SR6
SR5
SR13
SR7
SR1
SR8
SR4
JL028
JL027
JL024
SR3
RF9
SR10
RF10
RF6
RF4
SR11
SR9
JL026
JL025
JL031
JL033
JL008
JL032
JL036
JL034
JL035
JL010
JL023
JL012
JL014
09
CN001 28P B TO B
SCK
DATA TO SLVE
VIDEO DA CS
VIDEO CS
CAP ON
DATA TO V D/A
VIDEO 4.9V
VIDEO 4.9V
N.C
EC VIDEO OUT
VIDEO GND
VIDEO GND
E/L
E/C DET
EXMP
EXME
ME/MP
ZOOM S EVR
V MUTE
ZOOM M EVR
V OUT SW
V IN SW
VTR SYNC
SYNC DET
H CHG
VI SWP
JOG VD
N.C
TO CS-33 BOARD (6/6) CN506
CN002 40P B TO B
N.C
N.C
EDIT
MT/CH EVR
COMP REC
S IN
PB RF OUT
VA PB MODE
RF GND
RF GND
REC C RF
VIDEO IN/OUT
REC Y RF
JOG
DS ON
SP/LP
DDS VDW
CAM/LINE
DDS VDB
DDS VDW
PB TITLE C
DS VDB
TITLE TIMING
EVF OUT
TITLE EDGE
N.C
AFC H
N.C
CAM C
N.C
CAM GND
VIDEO I/O GND
CAM Y
TO CS-33 BOARD (6/6) CN507


8
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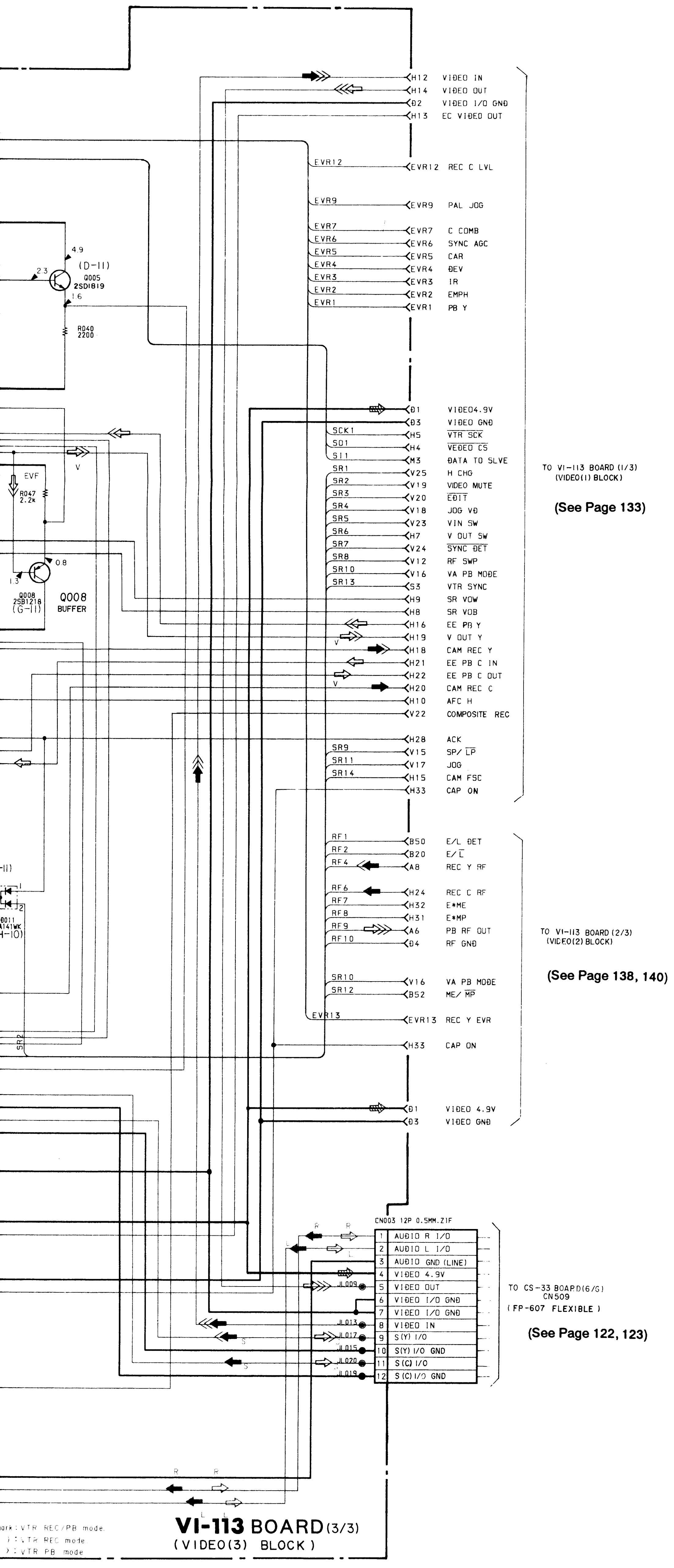
18
19
IC002 MB86168
IC002
(G-11)
VIDEO OUT INHIBIT
VDDL
IN/OUT
VIDEO 1
SW OUT
N.C
OSC (+)
OSC (-)
GND
VDDH
CAP (-)
CAP (-)
N.C
N.C
N.C
VIDEO 2
NY OUT
Q012 MUTE
Q012 2SC4909
(E-11)
L006 10μH
C019 10 6.3V TA
C022 0.1 F
C023 1000p B
C024 0.1 2125 B
C011 0.1 F
C025 0.33 F
Q010 BUFFER
Q006,007,003,005 CHARACTER MIX
Q005 2SD1819
(D-11)
Q003 2SC4400
Q006 UN5111
(D-10)
R033 2200
R034 39k
R035 2200
R036 4700
R037 5600
R038 8.2k
R040 2200
C028 0.1 F
C029 0.01 F
IC003
(H-11)
IC003 NJM2235
RB001 33K
RB002 12K
RB003 10K
TT2
TT1
SW1
SW2
C035 10 16V AL
C033 0.1 F
R062 2.2k
Q010 2SB1218
(D-11)
EVF
R047 2.2k
Q007 XN4215
(D-11)
R042 1000
R045 2200
R043 47k
Q008 2SB1218
(G-11)
Q008 BUFFER
C036 0.1 F
R065 1k
C044 470p
R063 39k
Q019 2SD819
L001 10μH
C001 10 16V
C038 0.01 B
C042 0.01 B
IC005
(G-10)
IC005 NJM2234
RB004 4.7K
D007 MA110
(H-10)
D003 MA141WK
(H-11)
D008 MA141WK
D010 MA141WK
(H-11)
D009 MA110
(G-11)
R048 2.2k
R058 2.2k
R066 22k
R069 47k
C040 220p SL
Q011 2SC4400 SWITCH
(H-11)
Q017 UN5213
(H-10)
C037 0.01 B
R052 4700
C039 0.1 F
R053 10k
D012 MA110
(G-10)
Q013 2SD819
(H-10)
C041 0.01 F
R054 2200
R071 2700
R072 3900
Q014 2SC4909
(G-11)
D011 MA141WK
(H-10)
Q014 MUTE
Q013 BUFFER
Q017 SWITCH
D006 MA141WK
(H-10)
L004 10μH
R023 33
R024 39
C017 10 6.3V TA
C018 0.1 F
R025 36
R026 39
R020 0
R068 0
R093 0
CAM
S
V
R
L
SR2
SR10
SR14
EVR12
EVR9
EVR7
EVR6
EVR5
EVR4
EVR3
EVR2
EVR1
SCK1
SO1
SI1
SR1
SR2
SR3
SR4
SR5
SR6
SR7
SR8
SR10
SR13
SR9
SR11
SR14
RF1
RF2
RF4
RF6
RF7
RF8
RF9
RF10
SR10
SR12
EVR13
CN003
JL009
JL013
JL017
JL015
JL020
JL019
RF9
SR10
RF10
RF6
RF4
SR11
SR9
JL026
JL025
JL031
JL033
JL008
JL032
JL036
JL034
JL035
JL010
JL023
JL012
JL011
JL014
JL016
JL018
JL030
36 COMP REC
35 S IN
34 PB RF OUT
33 VA PB MODE
32 RF GND
31 RF GND
30 REC C RF
29 VIDEO IN/OUT
28 REC Y RF
27 JOG
26 DS ON
25 SP/LP
24 DDS VOW
23 CAM/LINE
22 DDS VOB
21 DS VOW
20 PB TITLE C
19 DS VOB
18 TITLE TIMING
17 EVF OUT
16 TITLE EDGE
15 N.C
14 AFC H
13 N.C
12 CAM C
11 N.C
10 CAM GND
9 VIDEO I/O GND
8 CAM Y
7 N.C
6 Y CHK
5 AUDIO I/O GND
4 BACK UP VDD
3 AUDIO R I/O
2 CAM FSC
1 AUDIO L I/O

no mark : VTR REC/PB mode.
(　　) : VTR REC mode
〈　　〉 : VTR PB mode

VI-113 BOARD(3/3)
(VIDEO(3) BLOCK)

TO CS-33 BOARD (6/6) CN507

(See Page 124)


H12 VIDEO IN
H14 VIDEO OUT
B2 VIDEO I/O GND
H13 EC VIDEO OUT
EVR12 REC C LVL
EVR9 PAL JOG
EVR7 C COMB
EVR6 SYNC AGC
EVR5 CAR
EVR4 DEV
EVR3 IR
EVR2 EMPH
EVR1 PB Y
4.9
2.3
1.6
(D-11)
Q005
2SD1819
R040
2200
B1 VIDEO4.9V
B3 VIDEO GND
H5 VTR SCK
H4 VEDEO CS
M3 DATA TO SLVE
V25 H CHG
V19 VIDEO MUTE
V20 EDIT
V18 JOG VD
V23 VIN SW
H7 V OUT SW
V24 SYNC DET
V12 RF SWP
V16 VA PB MODE
S3 VTR SYNC
H9 SR VOW
H8 SR VOB
H16 EE PB Y
H19 V OUT Y
H18 CAM REC Y
H21 EE PB C IN
H22 EE PB C OUT
H20 CAM REC C
H10 AFC H
V22 COMPOSITE REC
H28 ACK
V15 SP/LP
V17 JOG
H15 CAM FSC
H33 CAP ON
SCK1
SO1
SI1
SR1
SR2
SR3
SR4
SR5
SR6
SR7
SR8
SR10
SR13
SR9
SR11
SR14
EVF
R047
2.2k
0.8
1.3
Q008
2SB1218
(G-11)
Q008
BUFFER
V
B50 E/L DET
B20 E/L
A8 REC Y RF
H24 REC C RF
H32 E*ME
H31 E*MP
A6 PB RF OUT
B4 RF GND
RF1
RF2
RF4
RF6
RF7
RF8
RF9
RF10
SR10
SR12
V16 VA PB MODE
B52 ME/MP
EVR13 REC Y EVR
H33 CAP ON
B1 VIDEO 4.9V
B3 VIDEO GND
D011
H-10
CN003 12P 0.5MM.ZIF
1 AUDIO R I/O
2 AUDIO L I/O
3 AUDIO GND (LINE)
4 VIDEO 4.9V
5 VIDEO OUT
6 VIDEO I/O GND
7 VIDEO I/O GND
8 VIDEO IN
9 S(Y) I/O
10 S(Y) I/O GND
11 S(C) I/O
12 S(C) I/O GND
JL009
JL013
JL017
JL015
JL020
JL019
R
L
S
VI-113 BOARD (3/3)
(VIDEO(3) BLOCK)
ark : VTR REC/PB mode
: VTR REC mode
: VTR PB mode

TO VI-113 BOARD (1/3)
(VIDEO(1) BLOCK)

(See Page 133)

TO VI-113 BOARD (2/3)
(VIDEO(2) BLOCK)

(See Page 138, 140)

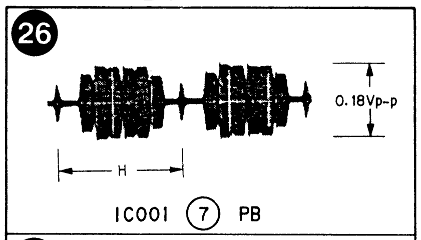
TO CS-33 BOARD (6/6)
CN509
(FP-607 FLEXIBLE)

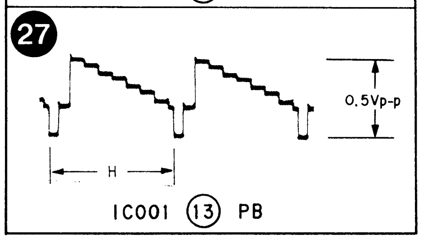
(See Page 122, 123)

- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

VI-113 BOARD (3/3)





MA-131 (MIC AMP, REMOTE CONTROL RECEIVER), VK-23 (VTR FUNCTION SWITCH), EJ-26 (VTR FUNCTION SWITCH), SJ-11 (S VIDEO JACK), ZB-1 (BUZZER), JK-83 (V

— Ref. No. MA-131, EJ-26, SW-202 BOARDS: 1000 series, VK-23, SJ-11, ZB-1 BOARDS: 2000 series, JK-83 BOARD: 3000 series —

< DIODE >

D801	8-719-404-46	DIODE	MA110

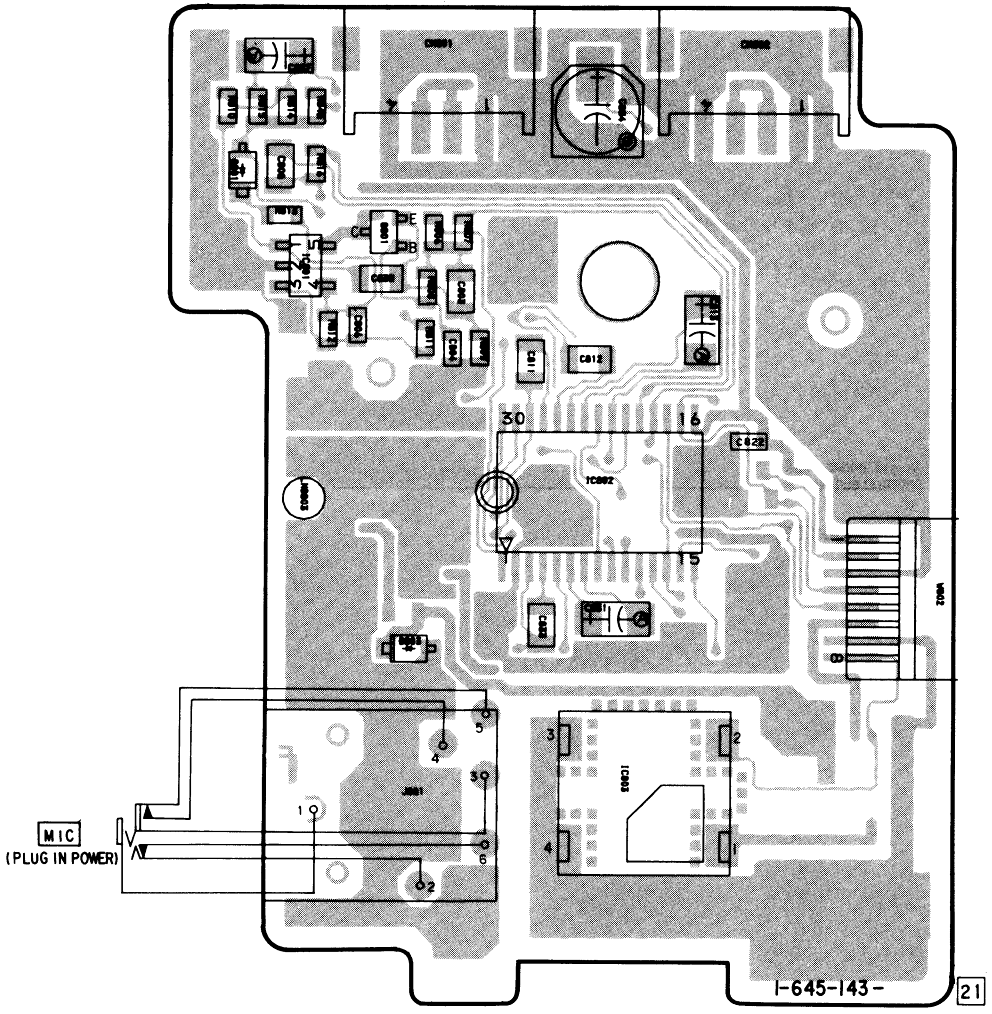
< IC >

IC801	8-759-710-79	IC	NJM2107F
IC802	8-759-084-53	IC	CXA1618AN
IC803	8-749-923-29	IC	RS-20E-T

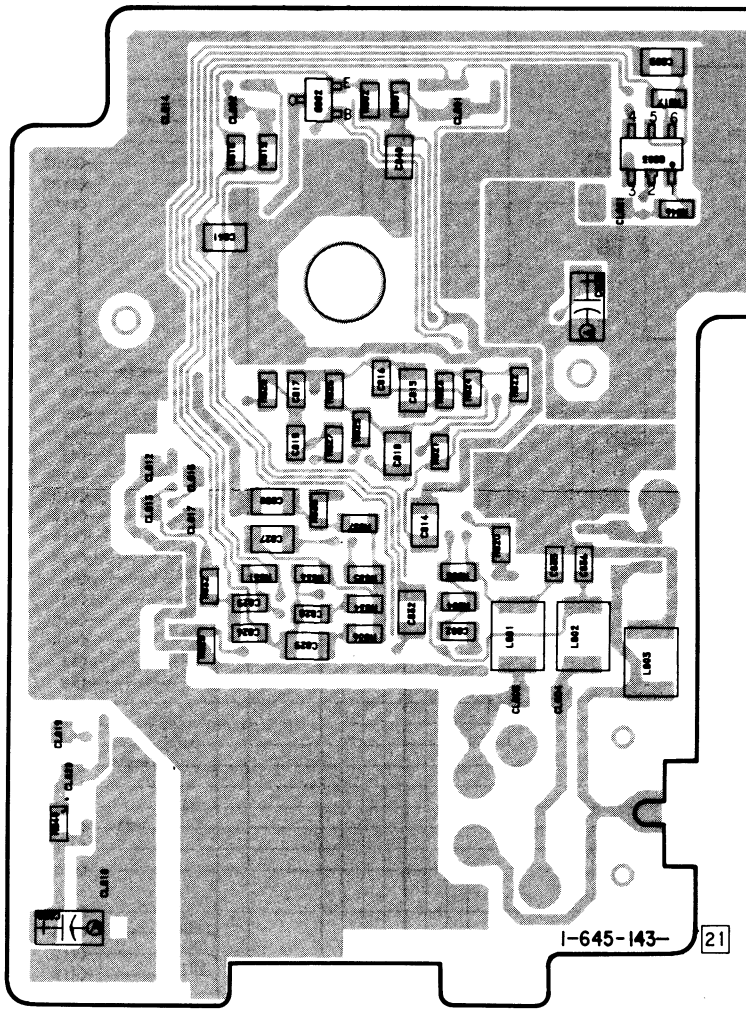
< TRANSISTOR >

Q801	8-729-230-63	TRANSISTOR	2SC4116-YG
Q802	8-729-230-63	TRANSISTOR	2SC4116-YG
Q803	8-729-010-80	TRANSISTOR	FC13

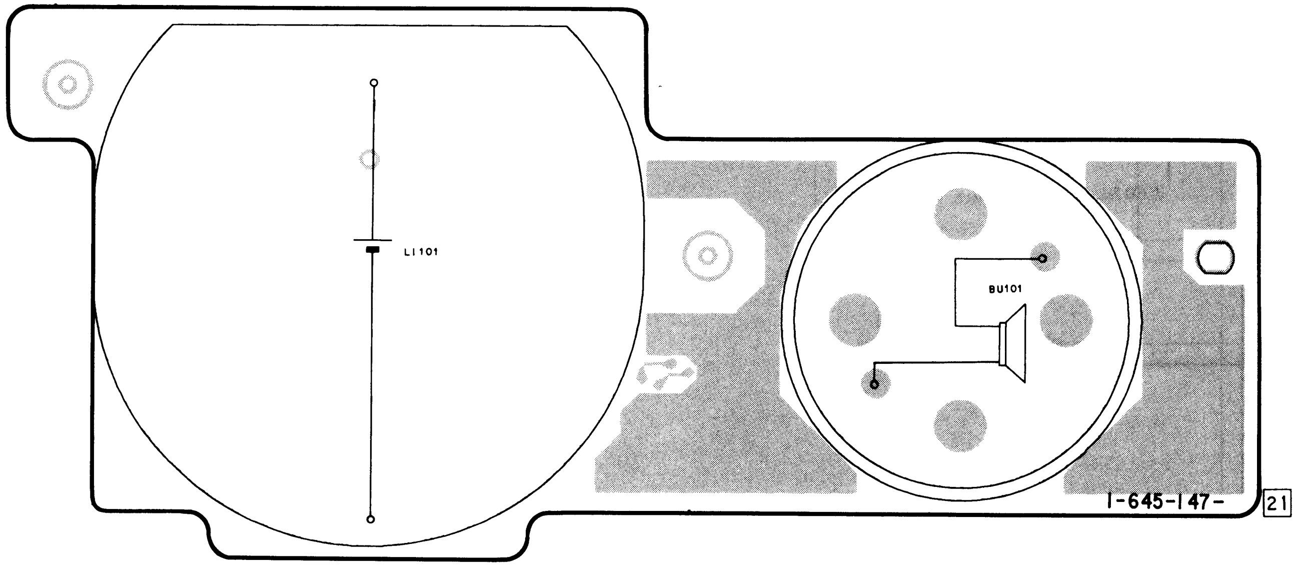
MA-131 BOARD (COMPONENT SIDE)


MIC
(PLUG IN POWER)
30
16
15
IC802
IC803
J801
1
2
3
4
5
6
1-645-143-
21

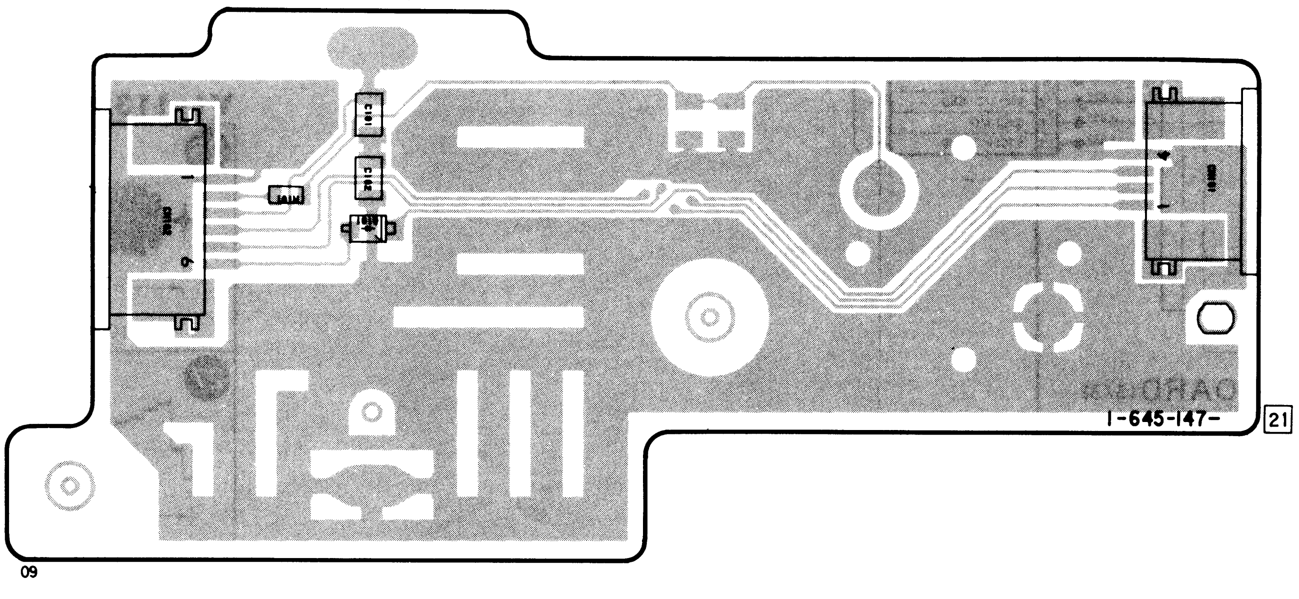
MA-131 BOARD (CONDUCTOR SIDE)



ZB-1 BOARD (COMPONENT SIDE)


L1101
BU101
1-645-147-
21

ZB-1 BOARD (CONDUCTOR SIDE)



09

< DIODE >

D101	8-719-404-46	DIODE	MA110

ACK), ZB-1 (BUZZER), JK-83 (VIDEO, AUDIO JACK), SW-202 (CAMERA FUNCTION SWITCH) PRINTED WIRING BOARDS

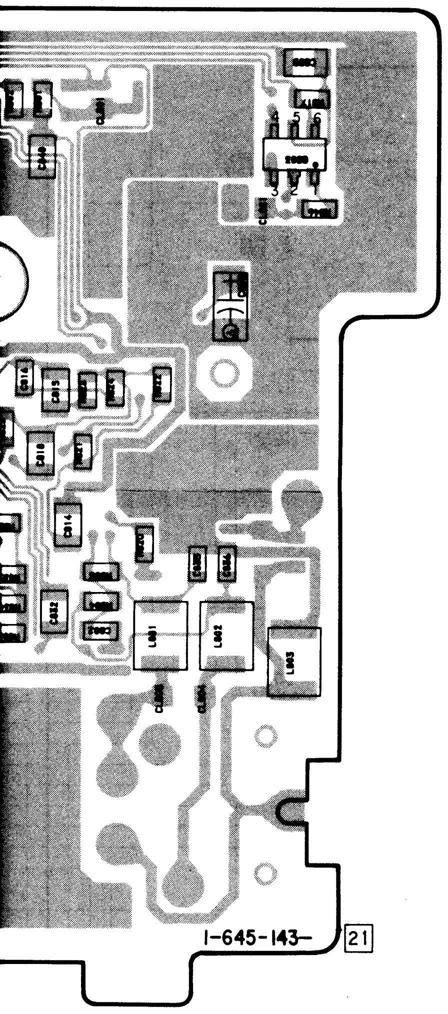
OR >

2SC4116-YG
2SC4116-YG
FC13

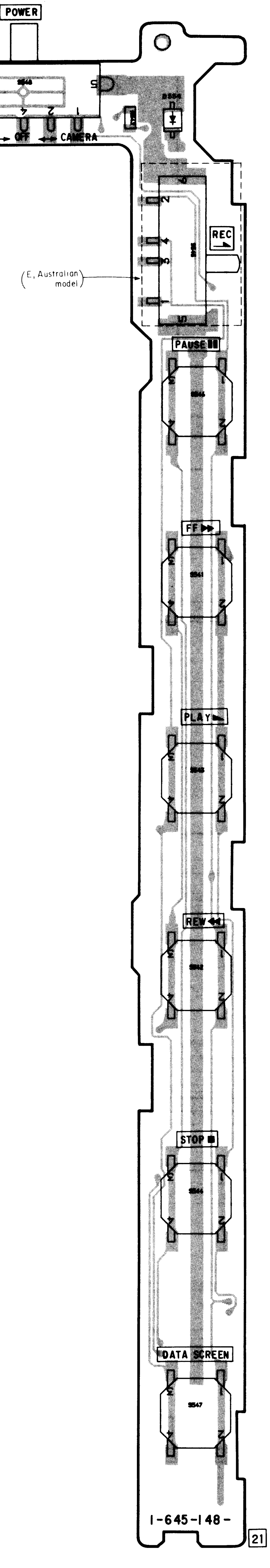
< DIODE >

D541	8-719-017-25	DIODE	02DZ13-TPH3
D542	8-719-017-25	DIODE	02DZ13-TPH3
D543	8-719-017-25	DIODE	02DZ13-TPH3
D544	8-719-404-46	DIODE	MA110
D545	8-719-017-25	DIODE	02DZ13-TPH3
D546	8-719-017-25	DIODE	02DZ13-TPH3
D547	8-719-017-25	DIODE	02DZ13-TPH3
D548	8-719-017-25	DIODE	02DZ13-TPH3
D549	8-719-404-46	DIODE	MA110
D551	8-719-026-39	DIODE	CL-150UR-CD

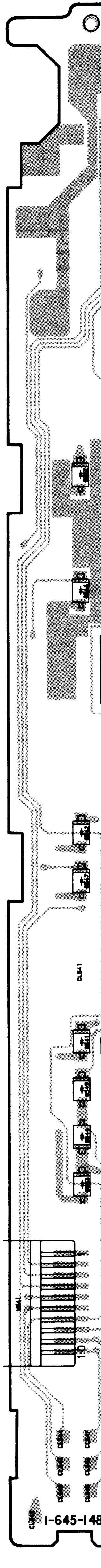
TOR SIDE)



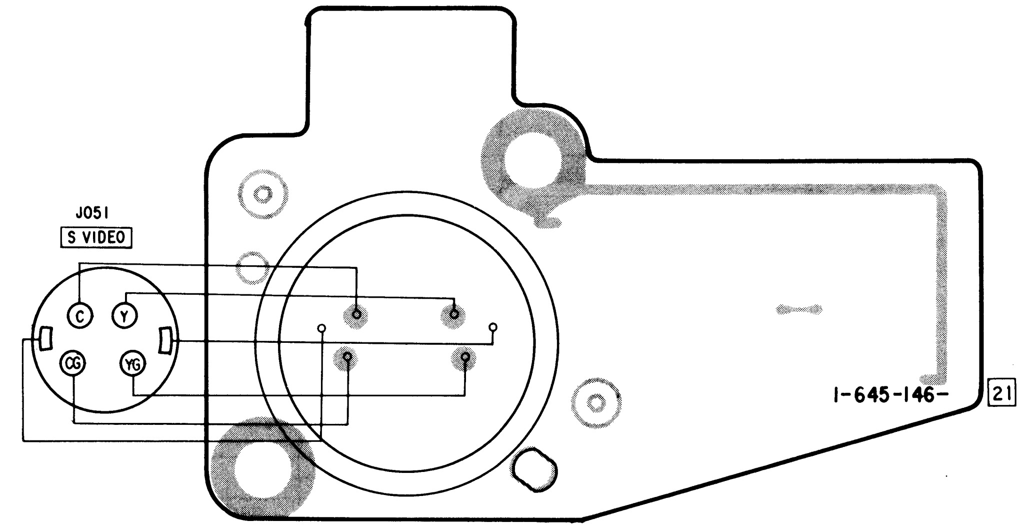
VK-23 BOARD (COMPONENT SIDE)


POWER
VTR
OFF
CAMERA
REC
(E, Australian model)
PAUSE
FF
PLAY
REW
STOP
DATA SCREEN
1-645-148-
21

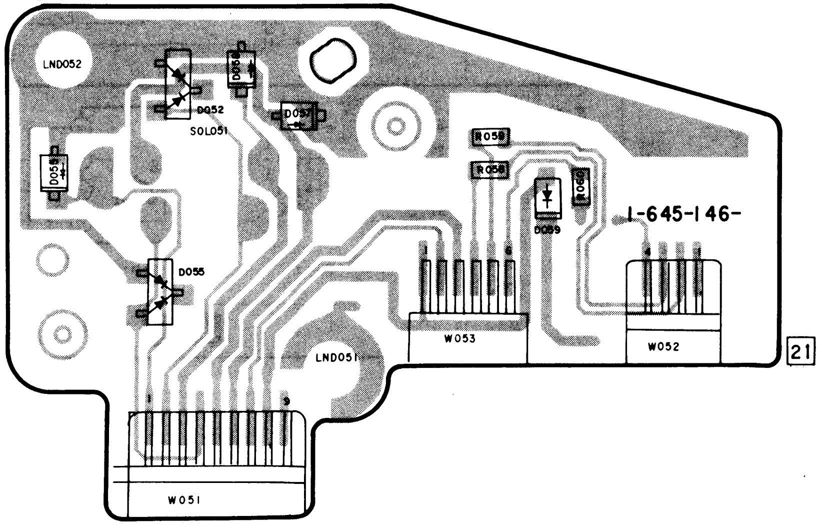
VK-23 BO



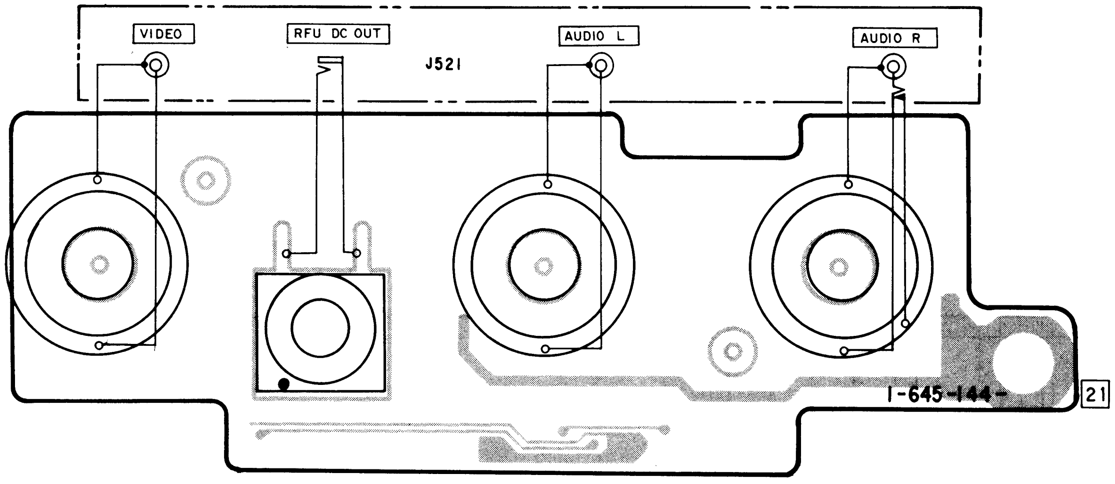
SJ-11 BOARD (COMPONENT SIDE)


J051
S VIDEO
C
Y
CG
YG
1-645-146-
21

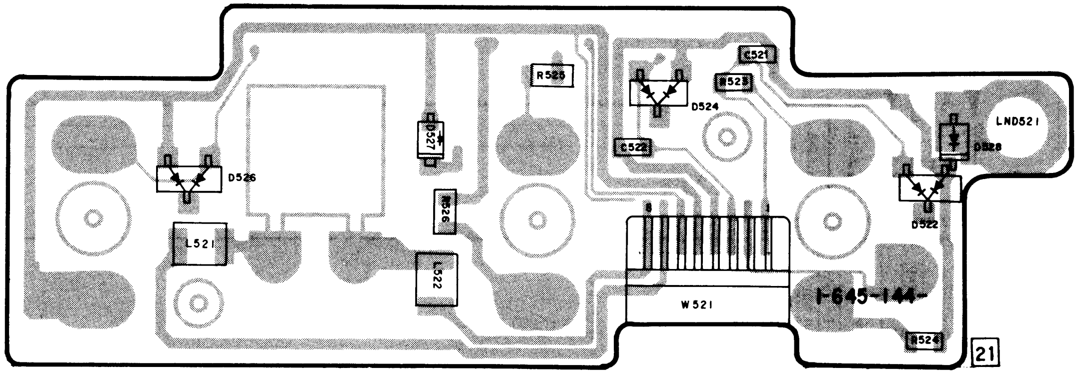
SJ-11 BOARD (CONDUCTOR SIDE)


LND052
D052
SOL051
D059
1-645-146-
D055
W053
W052
LND051
W051
21

JK-83 BOARD (COMPONENT SIDE)


VIDEO
RFU DC OUT
J521
AUDIO L
AUDIO R
1-645-144-
21

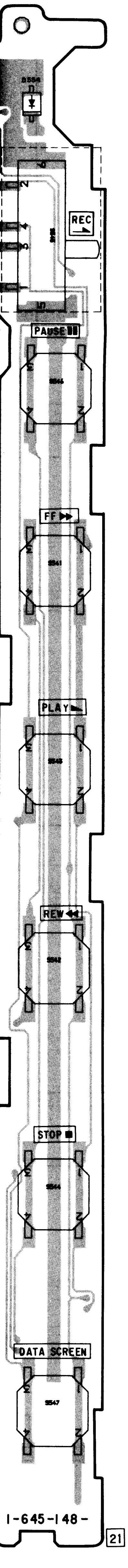
JK-83 BOARD (CONDUCTOR SIDE)


R525
C521
D524
C522
LND521
D526
L521
L522
W521
D522
1-645-144-
R524
21

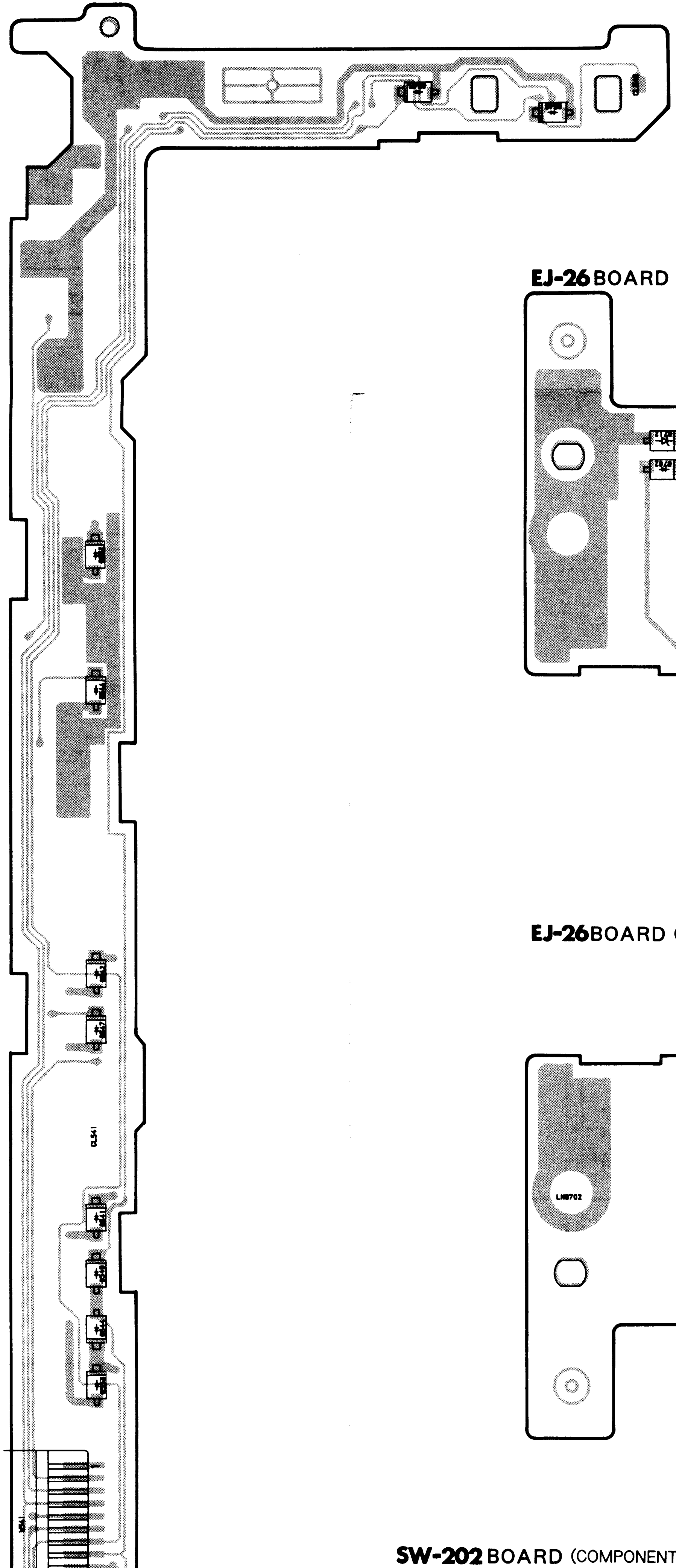
< DIODE >

D526	8-719-026-18	DIODE	MA3091WK-(TX)
D527	8-719-404-46	DIODE	MA110
D528	8-719-404-46	DIODE	MA110

16	8-719-017-25	DIODE	02DZ13-TPH3
17	8-719-017-25	DIODE	02DZ13-TPH3
18	8-719-017-25	DIODE	02DZ13-TPH3
19	8-719-404-46	DIODE	MA110
51	8-719-026-39	DIODE	CL-150UR-CD
D552	8-719-017-25	DIODE	02DZ13-TPH3
D553	8-719-017-25	DIODE	02DZ13-TPH3
D554	8-719-404-46	DIODE	MA110


REC
PAUSE
FF
PLAY
REW
STOP
DATA SCREEN
1-645-148-
21

VK-23 BOARD (CONDUCTOR SIDE)


CL541
1-645-148-
21

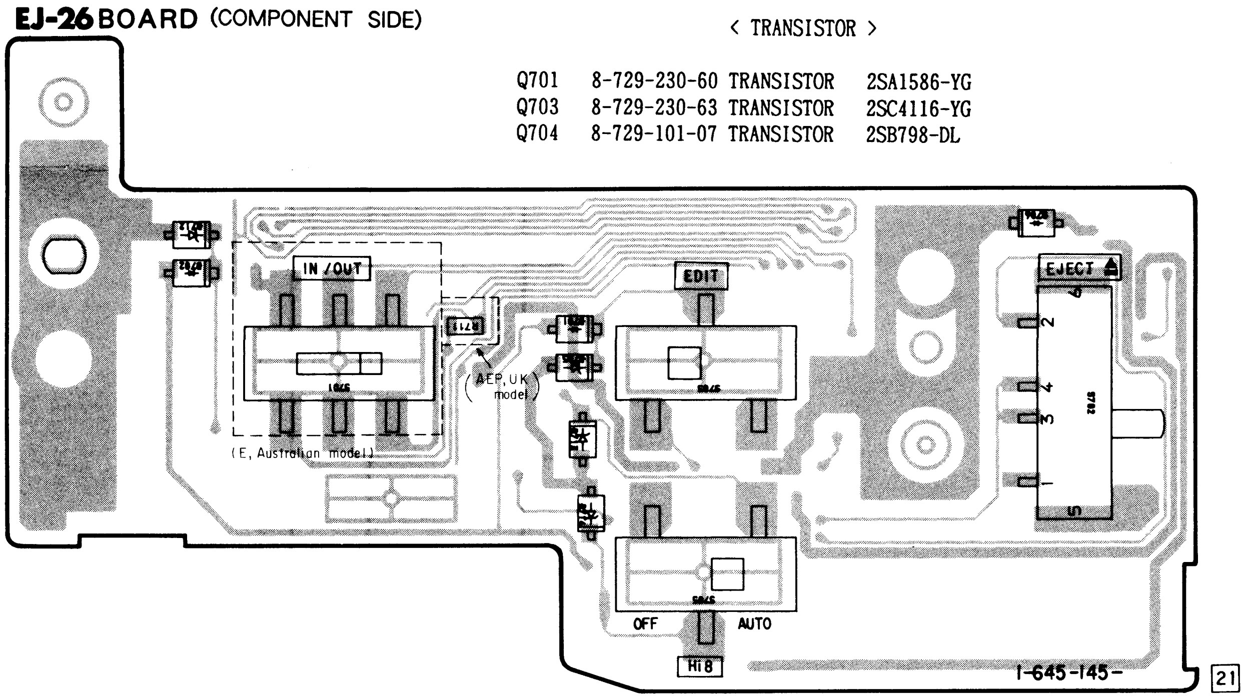
< DIODE >

D701	8-719-404-46	DIODE	MA110
D702	8-719-404-46	DIODE	MA110
D703	8-719-404-46	DIODE	MA110
D705	8-719-017-25	DIODE	02DZ13-TPH3
D708	8-719-017-25	DIODE	02DZ13-TPH3
D709	8-719-017-25	DIODE	02DZ13-TPH3
D710	8-719-017-25	DIODE	02DZ13-TPH3
D711	8-719-017-25	DIODE	02DZ13-TPH3
D712	8-719-017-25	DIODE	02DZ13-TPH3
D713	8-719-017-25	DIODE	02DZ13-TPH3
D714	8-719-017-25	DIODE	02DZ13-TPH3

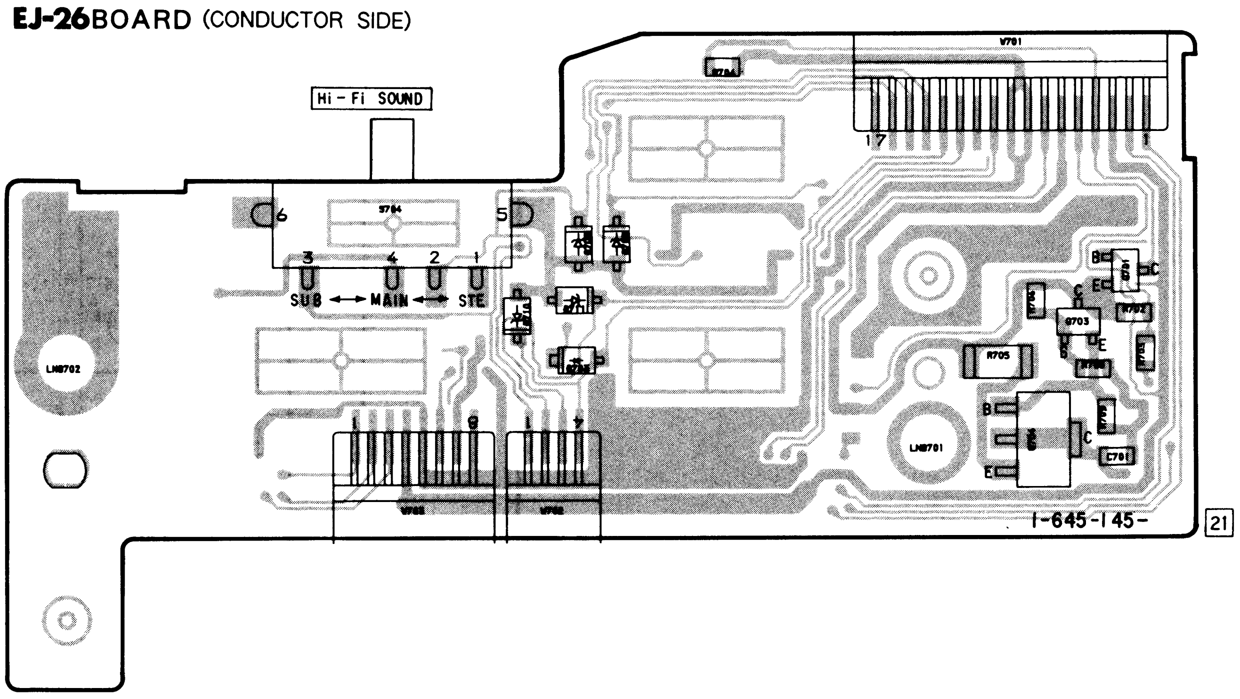
< TRANSISTOR >

Q701	8-729-230-60	TRANSISTOR	2SA1586-YG
Q703	8-729-230-63	TRANSISTOR	2SC4116-YG
Q704	8-729-101-07	TRANSISTOR	2SB798-DL

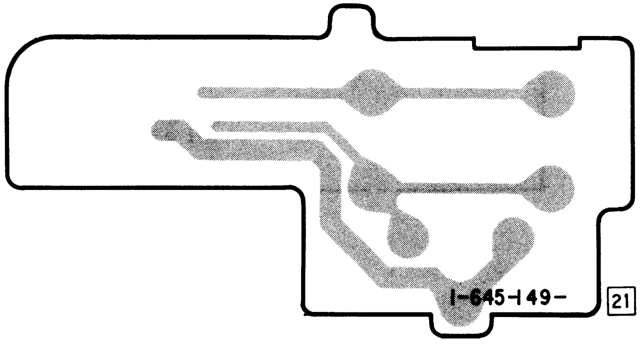
EJ-26 BOARD (COMPONENT SIDE)


IN/OUT
EDIT
EJECT
(AEP,UK model)
(E, Australian model)
OFF
AUTO
Hi8
1-645-145-
21

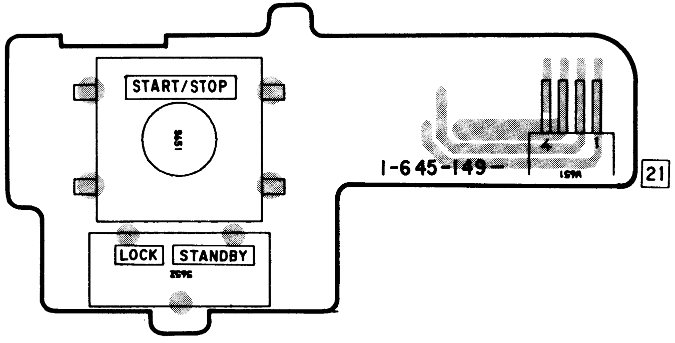
EJ-26 BOARD (CONDUCTOR SIDE)


Hi-Fi SOUND
SUB ←→ MAIN ←→ STE
V701
Q703
R705
C701
1-645-145-
21

SW-202 BOARD (COMPONENT SIDE)

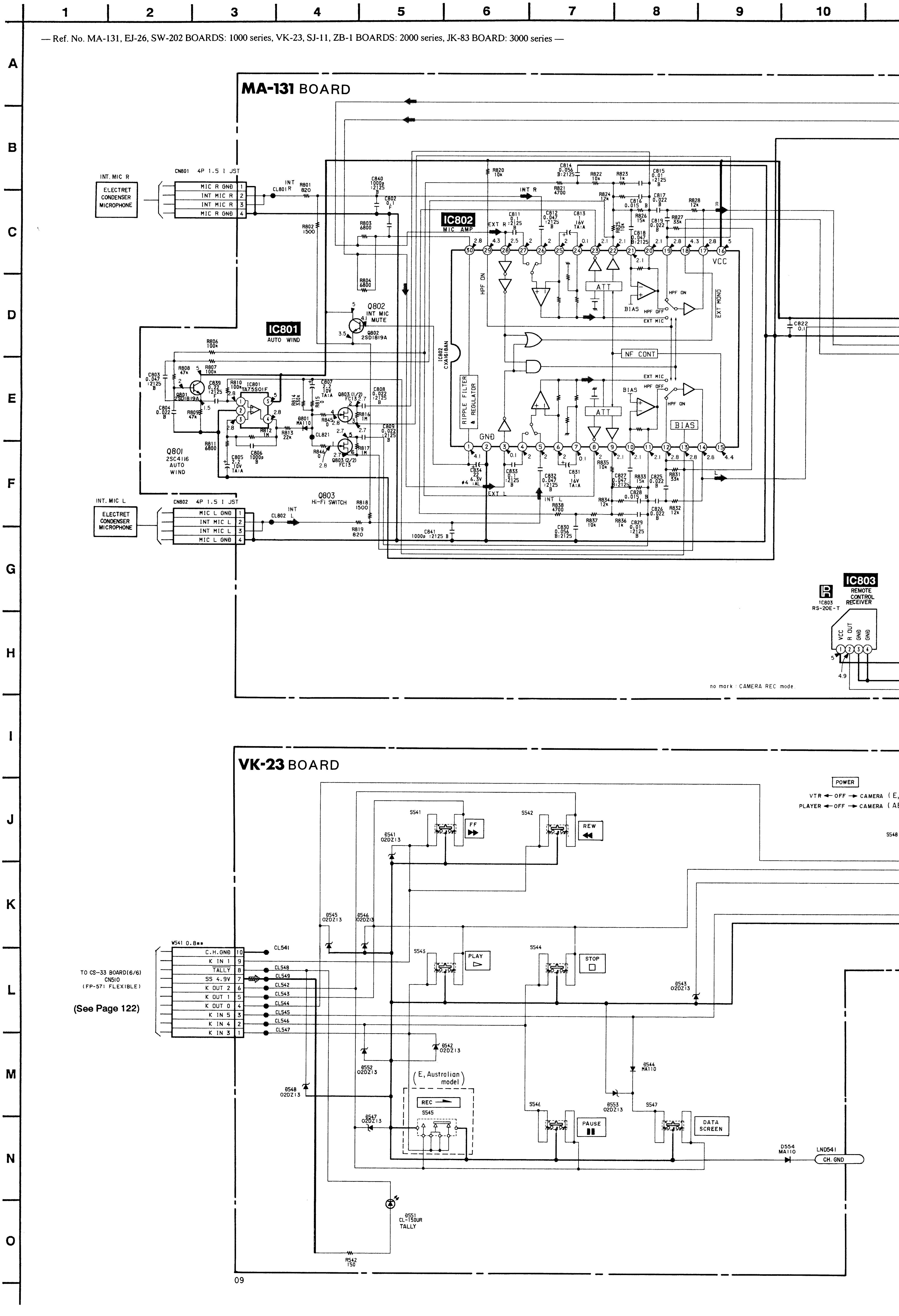


SW-202 BOARD (CONDUCTOR SIDE)

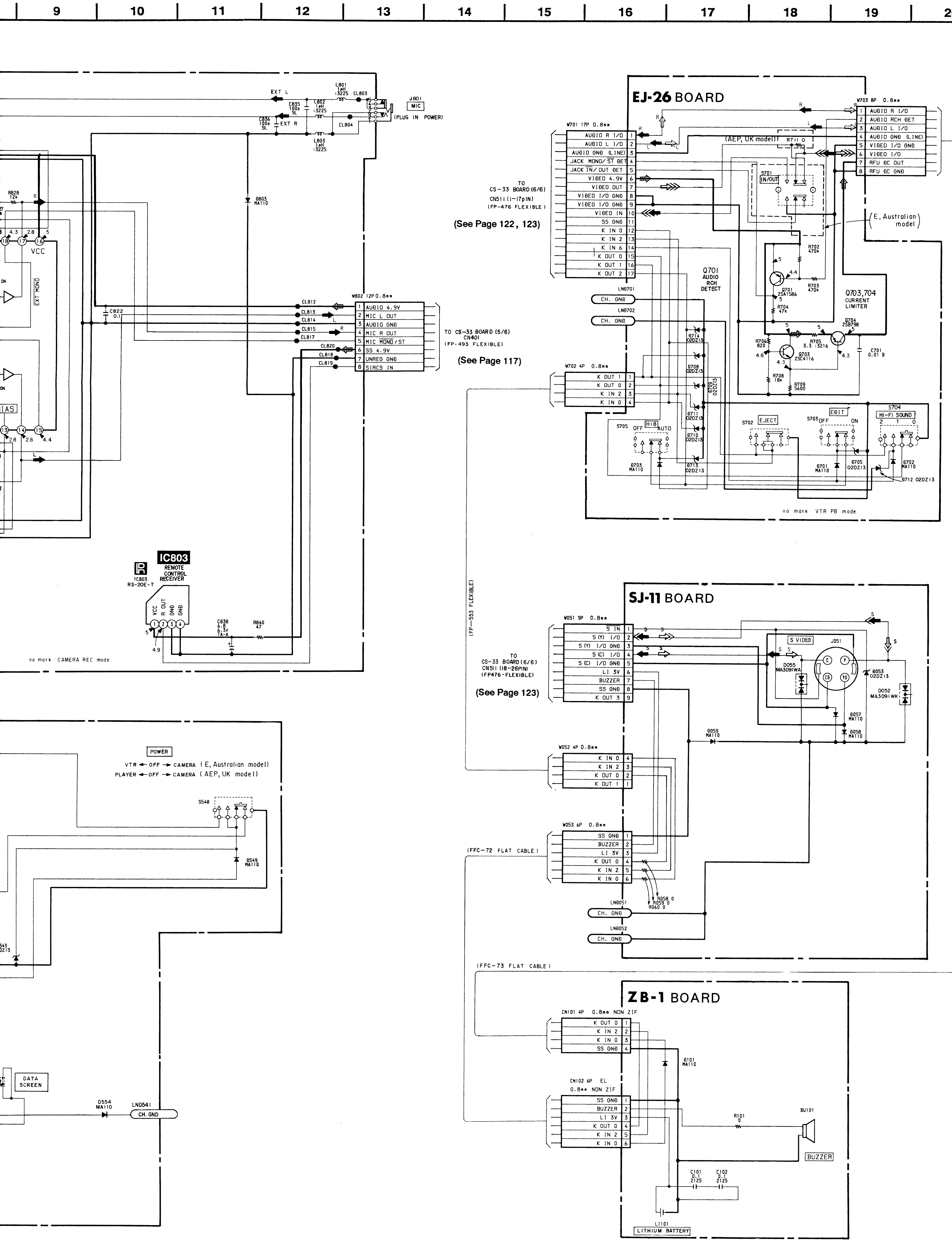

START/STOP
LOCK
STANDBY
1-645-149-
21

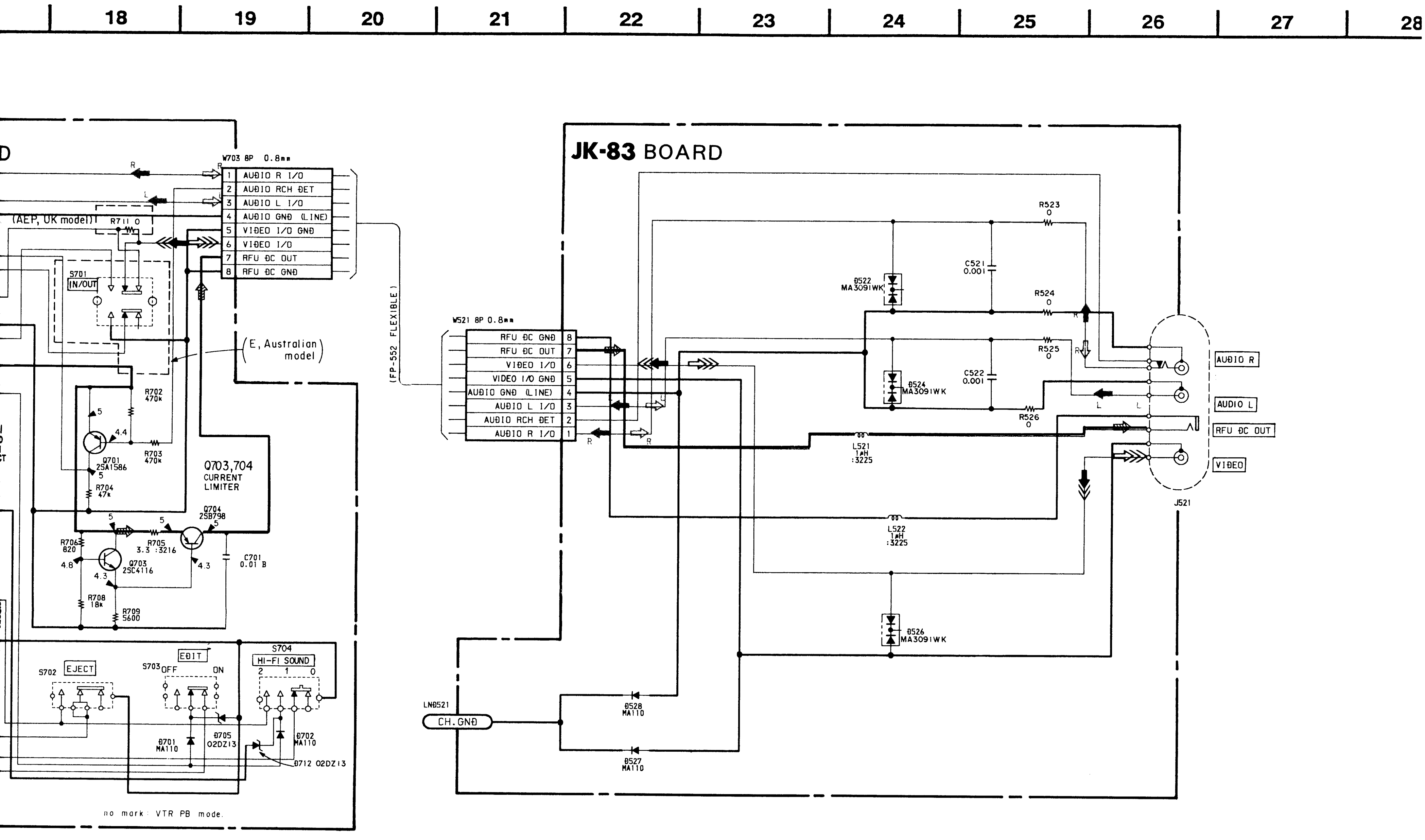
MA-131 (MIC AMP, REMOTE CONTROL RECEIVER), VK-23 (VTR FUNCTION SWITCH), EJ-26 (VTR FUNCTION SWITCH), SJ-11 (S VIDEO JACK), ZB-1 (BUZZE

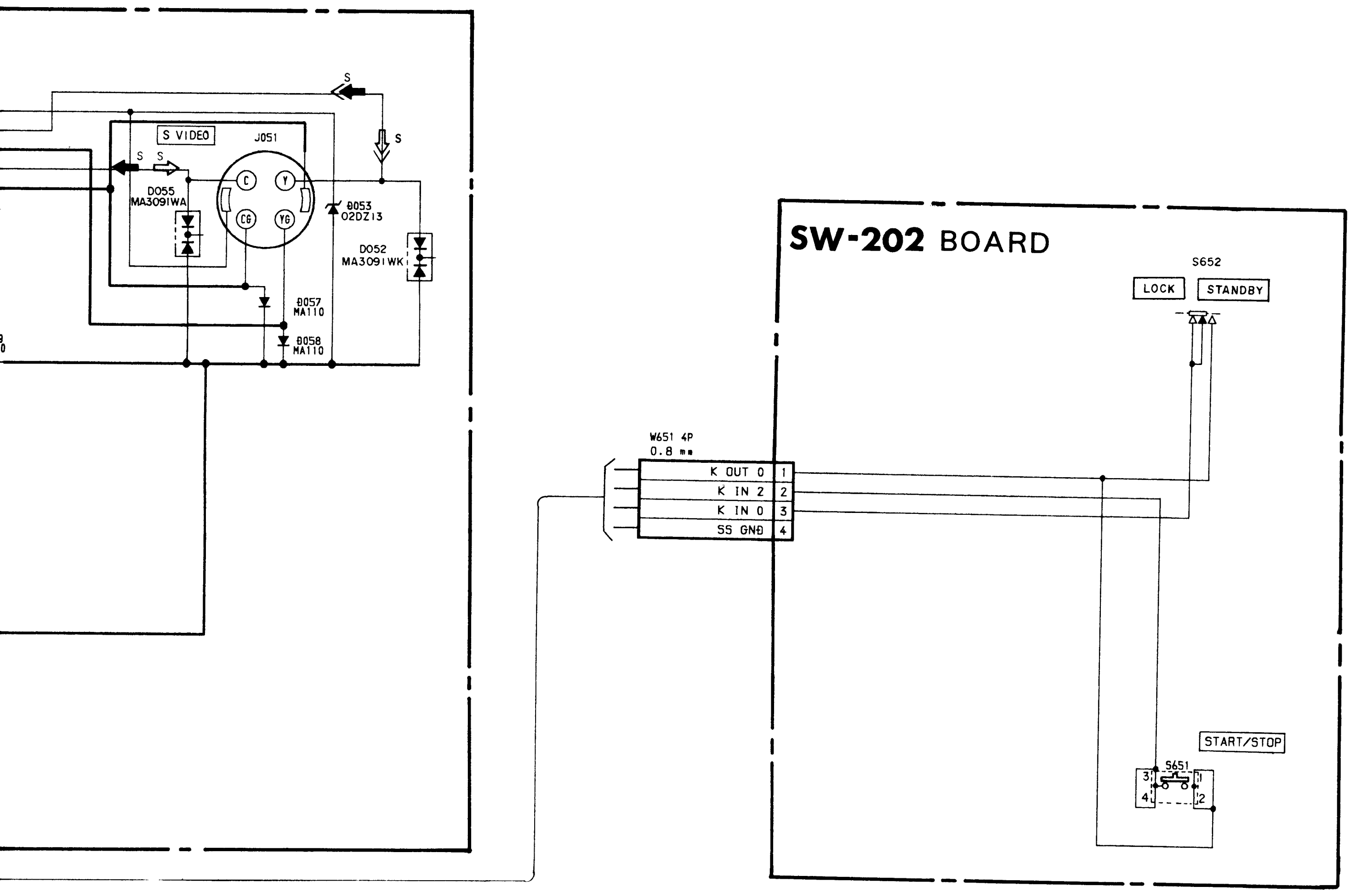
— Ref. No. MA-131, EJ-26, SW-202 BOARDS: 1000 series, VK-23, SJ-11, ZB-1 BOARDS: 2000 series, JK-83 BOARD: 3000 series —

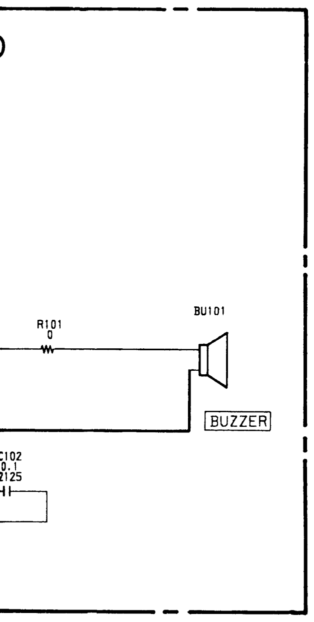

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
MA-131 BOARD
INT. MIC R
ELECTRET CONDENSER MICROPHONE
CN801 4P 1.5 I JST
MIC R GND
INT MIC R
INT MIC R
MIC R GND
INT R
CL801 R
R801 820
R802 1500
C840 1000p :2125
C802 0.1 F
R803 6800
R804 6800
IC802 MIC AMP
IC802 CXA1618AN
EXT R
INT R
HPF ON
HPF OFF
ATT
BIAS
EXT MIC
EXT MONO
VCC
NF CONT
RIPPLE FILTER & REGULATOR
GND
EXT L
INT L
Q802 INT MIC MUTE
Q802 2SD1819A
IC801 AUTO WIND
IC801 TA75S01F
R806 100k
R807 100k
R808 47k
C803 0.047 :2125 B
C804 0.022 B
Q801 2SD1819A
Q801 2SC4116 AUTO WIND
R809 47k
R810 100k
R811 6800
R812 1M
R813 22k
R814 330k
C839 0.22 :2125
C805 2.2 10V TA:A
C806 1000p B
C807 2.2 10V TA:A
D801 MA110
Q803 (1/2) FC13
Q803 (2/2) FC13
Q803 Hi-Fi SWITCH
R816 1M
R817 1M
R845
R846
C808 0.022 :2125 B
C809 0.022 :2125 B
CL821
C822 0.1
INT. MIC L
ELECTRET CONDENSER MICROPHONE
CN802 4P 1.5 I JST
MIC L GND
INT MIC L
INT MIC L
MIC L GND
INT L
CL802 L
R818 1500
R819 820
C841 1000p :2125 B
C834 22 6.3V :AL
IC803 REMOTE CONTROL RECEIVER
IC803 RS-20E-T
VCC
R OUT
GND
GND
no mark : CAMERA REC mode
VK-23 BOARD
W541 0.8mm
C.H.GND
K IN 1
TALLY
SS 4.9V
K OUT 2
K OUT 1
K OUT 0
K IN 5
K IN 4
K IN 3
TO CS-33 BOARD(6/6) CN510 (FP-571 FLEXIBLE)
(See Page 122)
CL541
CL548
CL549
CL542
CL543
CL544
CL545
CL546
CL547
S541
FF
S542
REW
S543
PLAY
S544
STOP
S545
REC
(E, Australian model)
S546
PAUSE
S547
DATA SCREEN
S548
D541 02DZ13
D542 02DZ13
D543 02DZ13
D544 MA110
D545 02DZ13
D546 02DZ13
D547 02DZ13
D548 02DZ13
D552 02DZ13
D553 02DZ13
D554 MA110
D551 CL-150UR TALLY
R542 150
LND541
CH. GND
POWER
VTR ← OFF → CAMERA (E,
PLAYER ← OFF → CAMERA (AE
09

), SJ-11 (S VIDEO JACK), ZB-1 (BUZZER), JK-83 (VIDEO, AUDIO JACK), SW-202 (CAMERA FUNCTION SWITCH) SCHEMATIC DIAGRAMS


9
10
11
12
13
14
15
16
17
18
19
EJ-26 BOARD
W701 17P 0.8mm
AUDIO R I/O
AUDIO L I/O
AUDIO GND (LINE)
JACK MONO/ST DET
JACK IN/OUT DET
VIDEO 4.9V
VIDEO OUT
VIDEO I/O GND
VIDEO I/O GND
VIDEO IN
SS GND
K IN 0
K IN 2
K IN 6
K OUT 0
K OUT 1
K OUT 2
TO CS-33 BOARD (6/6) CN511 (1-17pIN) (FP-476 FLEXIBLE)
(See Page 122, 123)
W703 8P 0.8mm
AUDIO R I/O
AUDIO RCH DET
AUDIO L I/O
AUDIO GND (LINE)
VIDEO I/O GND
VIDEO I/O
RFU DC OUT
RFU DC GND
(AEP, UK model)
R711 0
S701 IN/OUT
(E, Australian model)
Q701 AUDIO RCH DETECT
Q703,704 CURRENT LIMITER
R702 470k
R703 470k
R704 47k
Q701 2SA1586
Q704 2SB798
R705 3.3 :3216
Q703 2SC4116
R706 820
R708 18k
R709 5600
C701 0.01 B
LND701 CH. GND
LND702 CH. GND
W702 4P 0.8mm
K OUT 1
K OUT 0
K IN 2
K IN 0
D714 02DZ13
D708 02DZ13
D709 02DZ13
D711 02DZ13
D710 02DZ13
D713 02DZ13
S705 Hi8 OFF AUTO
D703 MA110
S702 EJECT
S703 EDIT OFF ON
D701 MA110
D705 02DZ13
S704 HI-FI SOUND 2 1 0
D702 MA110
D712 02DZ13
no mark : VTR PB mode
(FP-553 FLEXIBLE)
SJ-11 BOARD
W051 9P 0.8mm
S IN
S (Y) I/O
S (Y) I/O GND
S (C) I/O
S (C) I/O GND
LI 3V
BUZZER
SS GND
K OUT 3
TO CS-33 BOARD (6/6) CN511 (18-26PIN) (FP476-FLEXIBLE)
(See Page 123)
S VIDEO
J051
D055 MA3091WA
D053 02DZ13
D052 MA3091WK
D057 MA110
D058 MA110
D059 MA110
W052 4P 0.8mm
K IN 0
K IN 2
K OUT 0
K OUT 1
W053 6P 0.8mm
SS GND
BUZZER
LI 3V
K OUT 0
K IN 2
K IN 0
(FFC-72 FLAT CABLE)
R058 0
R059 0
R060 0
LND051 CH. GND
LND052 CH. GND
(FFC-73 FLAT CABLE)
ZB-1 BOARD
CN101 4P 0.8mm NON ZIF
K OUT 0
K IN 2
K IN 0
SS GND
D101 MA110
CN102 6P EL 0.8mm NON ZIF
SS GND
BUZZER
LI 3V
K OUT 0
K IN 2
K IN 0
R101 0
BU101
BUZZER
C101 0.1 2125
C102 0.1 2125
LI101
LITHIUM BATTERY
EXT L
EXT R
L801 1μH :3225
L802 1μH :3225
L803 1μH :3225
C835 100p SL
C836 100p SL
CL803
CL804
J801 MIC
(PLUG IN POWER)
D803 MA110
R828 12k
VCC
EXT MONO
BIAS
C822 0.1
W802 12P 0.8mm
CL812
CL813
CL814
CL815
CL817
CL820
CL818
CL819
AUDIO 4.9V
MIC L OUT
AUDIO GND
MIC R OUT
MIC MONO/ST
SS 4.9V
UNREG GND
SIRCS IN
TO CS-33 BOARD (5/6) CN401 (FP-493 FLEXIBLE)
(See Page 117)
IC803 REMOTE CONTROL RECEIVER
IC803 RS-20E-T
VCC
R OUT
GND
GND
C838 6.8 6.3V TA-A
R840 47
no mark : CAMERA REC mode
POWER
VTR ← OFF → CAMERA (E, Australian model)
PLAYER ← OFF → CAMERA (AEP, UK model)
S548
D549 MA110
D543 02DZ13
DATA SCREEN
D554 MA110
LND541 CH. GND


18
19
20
21
22
23
24
25
26
27
28
D
W703 8P 0.8mm
1 AUDIO R I/O
2 AUDIO RCH DET
3 AUDIO L I/O
4 AUDIO GND (LINE)
5 VIDEO I/O GND
6 VIDEO I/O
7 RFU DC OUT
8 RFU DC GND
R
L
(AEP, UK model)
R711 0
S701
IN/OUT
(E, Australian model)
R702 470k
R703 470k
Q701 2SA1586
R704 47k
Q703,704 CURRENT LIMITER
Q704 2SB798
R705 3.3 :3216
R706 820
Q703 2SC4116
C701 0.01 B
R708 18k
R709 5600
5
4.4
4.8
4.3
S704
HI-FI SOUND
2 1 0
EDIT
S703 OFF ON
S702 EJECT
D701 MA110
D705 02DZ13
D702 MA110
D712 02DZ13
no mark : VTR PB mode.
(FP-552 FLEXIBLE)
JK-83 BOARD
W521 8P 0.8mm
RFU DC GND 8
RFU DC OUT 7
VIDEO I/O 6
VIDEO I/O GND 5
AUDIO GND (LINE) 4
AUDIO L I/O 3
AUDIO RCH DET 2
AUDIO R I/O 1
R523 0
C521 0.001
D522 MA3091WK
R524 0
R525 0
C522 0.001
D524 MA3091WK
R526 0
L521 1μH :3225
L522 1μH :3225
D526 MA3091WK
AUDIO R
AUDIO L
RFU DC OUT
VIDEO
J521
LND521
CH.GND
D528 MA110
D527 MA110


S
S VIDEO
J051
C
Y
CG
YG
D055 MA3091WA
D053 02DZ13
D052 MA3091WK
D057 MA110
D058 MA110
SW-202 BOARD
S652
LOCK
STANDBY
W651 4P 0.8mm
K OUT 0 1
K IN 2 2
K IN 0 3
SS GND 4
START/STOP
S651


R101 0
BU101
BUZZER
C102 0.1 :2125

- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

SL-24 (MECH DRIVE), LS-33 (MECH CONTROL) PRINTED WIRING BOARDS

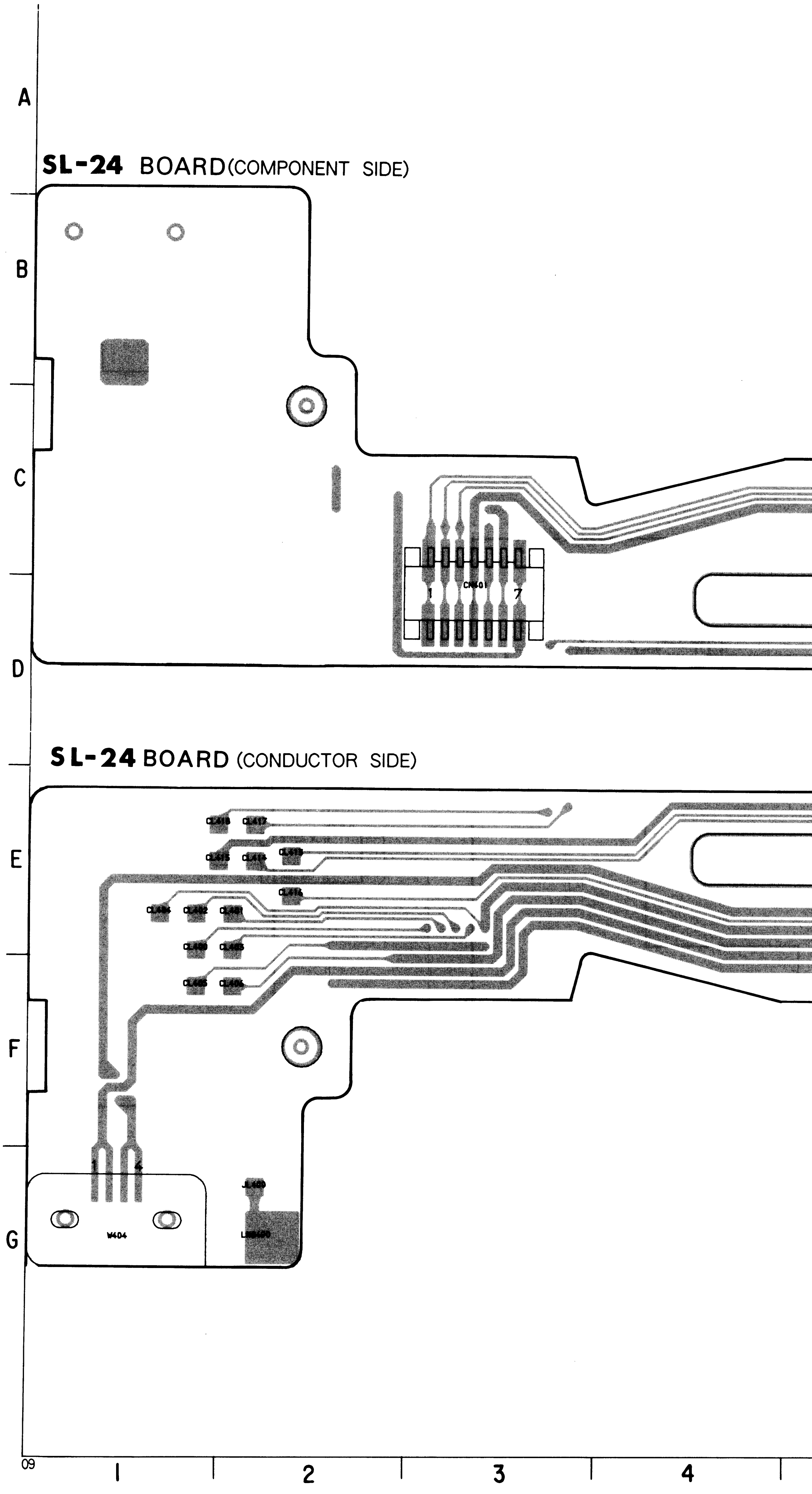
— Ref. No. SL-24 BOARD: 1000 series —

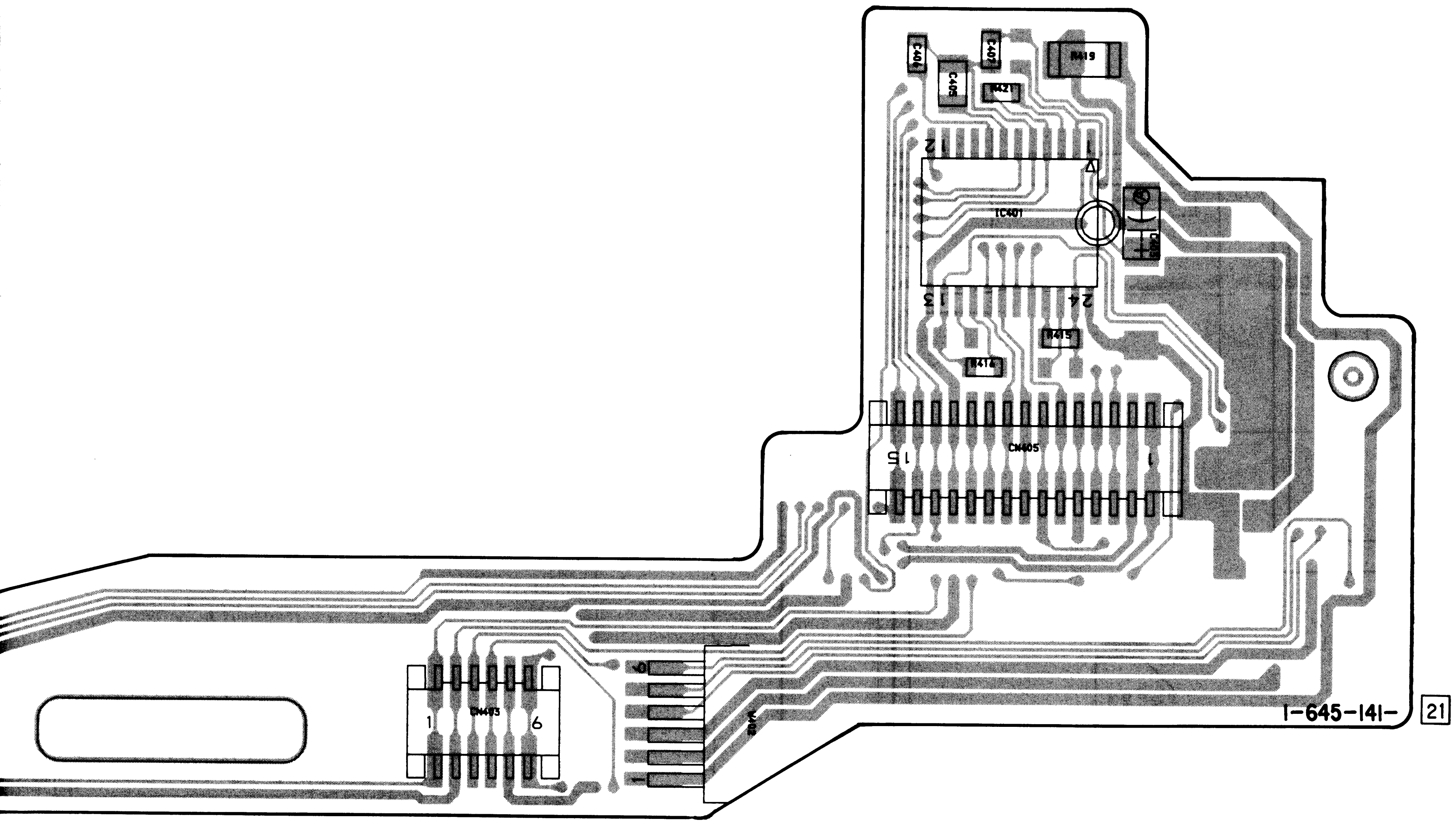
< IC >

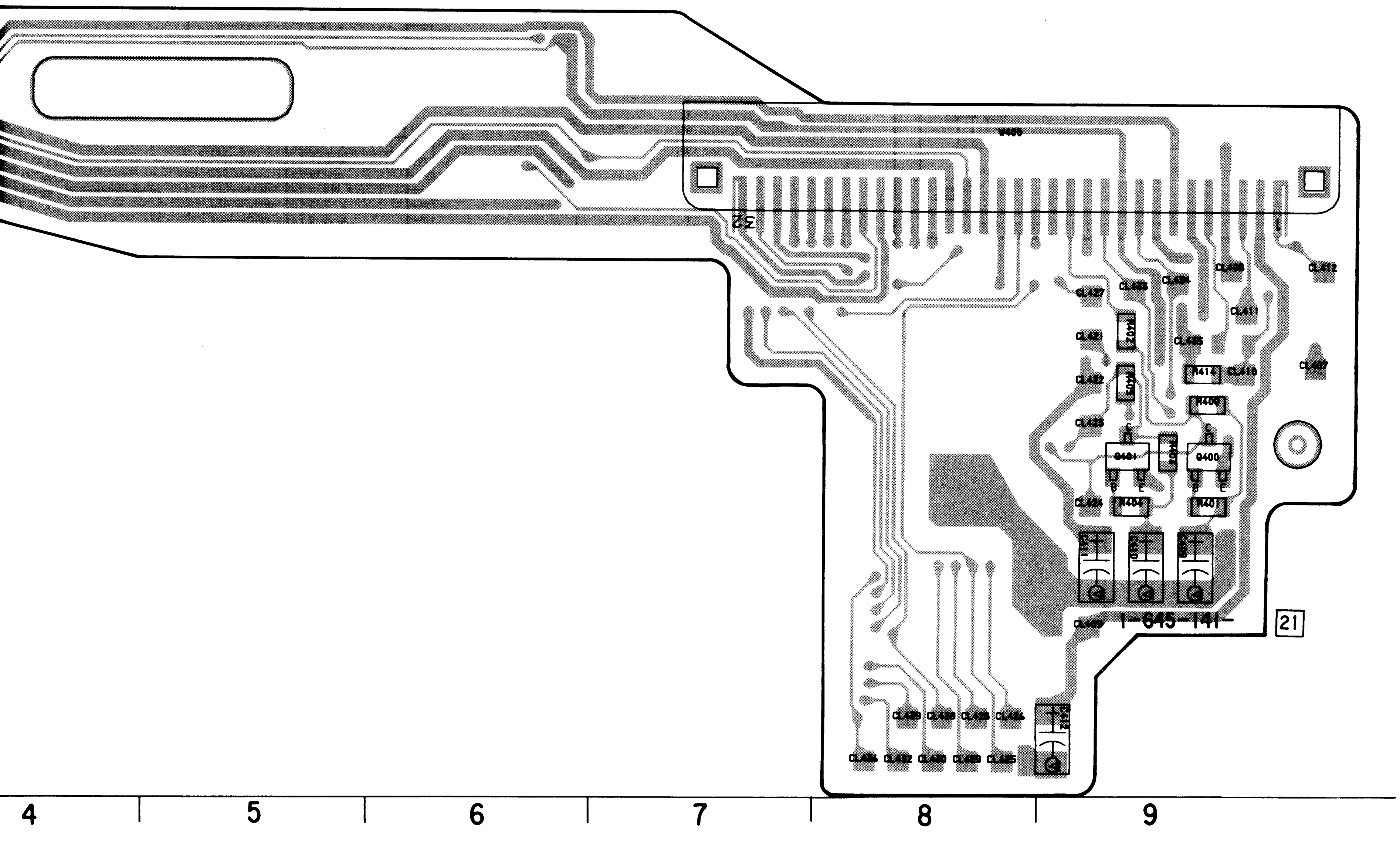
IC401	8-759-059-09	IC	LB8111V

< TRANSISTOR >

Q400	8-729-230-63	TRANSISTOR	2SC4116-YG
Q401	8-729-230-63	TRANSISTOR	2SC4116-YG


A
B
C
D
E
F
G
SL-24 BOARD (COMPONENT SIDE)
CN401
1
7
SL-24 BOARD (CONDUCTOR SIDE)
1
4
W404
09
1
2
3
4


C403
C402
R419
C405
R421
12
1
IC401
13
24
R415
R414
CN405
15
1
CN403
1
6
1-645-141- 21

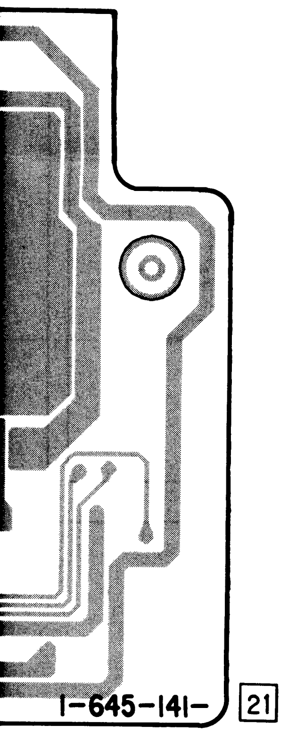

W400
32
1
CL412
CL427
CL433
CL434
CL408
CL411
CL421
CL435
R416
CL410
CL407
CL422
R400
CL423
Q401
Q400
CL424
R404
R401
CL409
1-645-141- 21
4
5
6
7
8
9

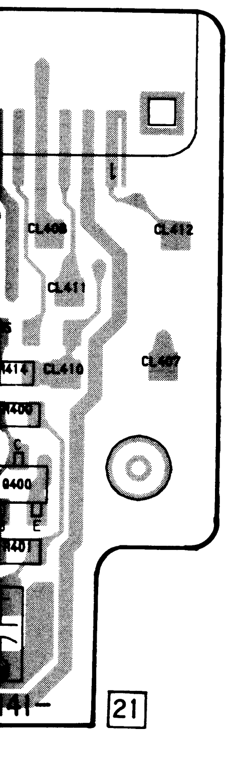
< DIODE >

D001	8-719-989-52	DIODE	GL4600S

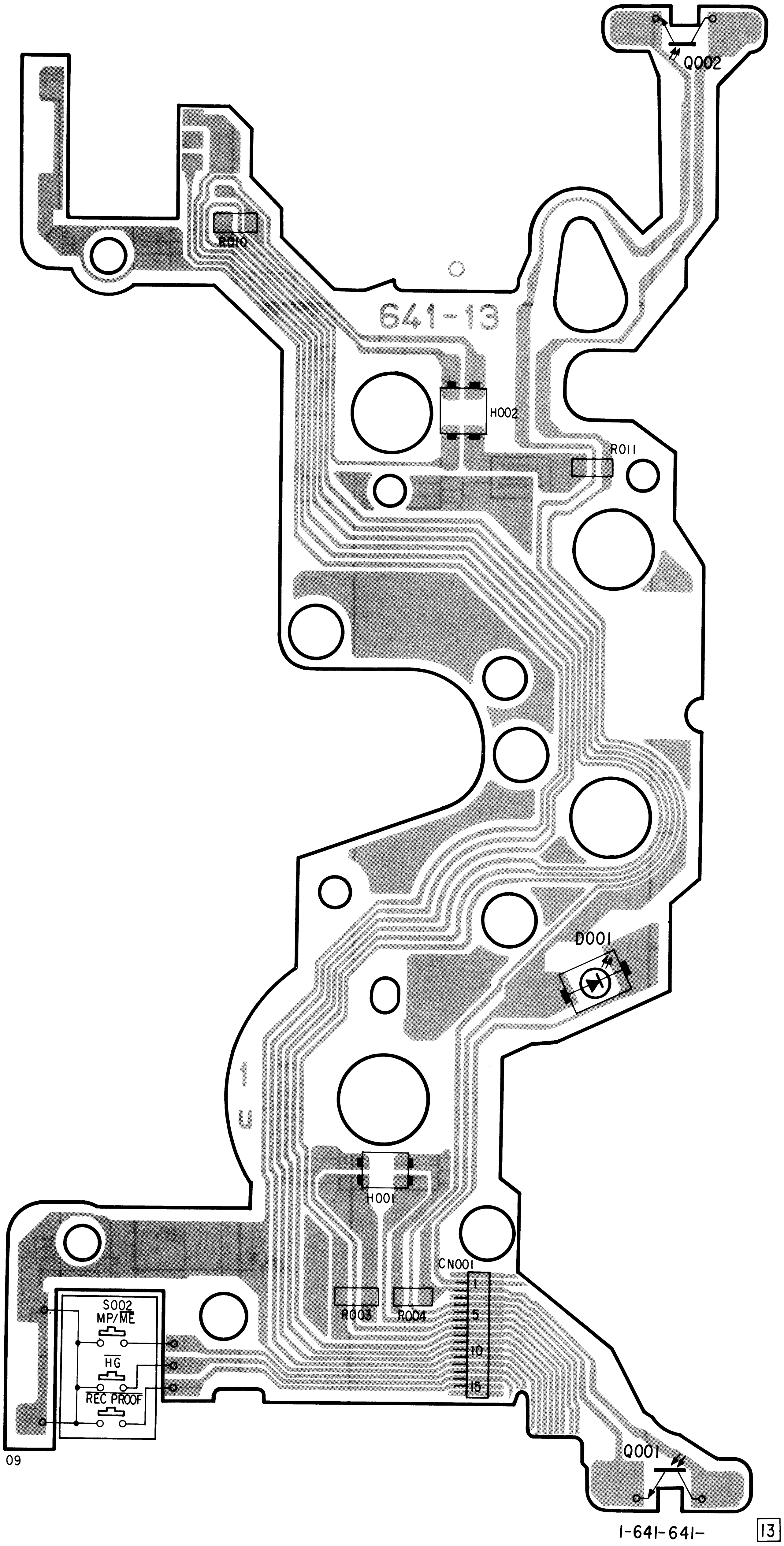
< TRANSISTOR >

Q001	8-729-012-46	TRANSISTOR	PT4600FS
Q002	8-729-012-46	TRANSISTOR	PT4600FS




CL408
CL412
CL411
CL410
CL407
41-
21

LS-33 BOARD

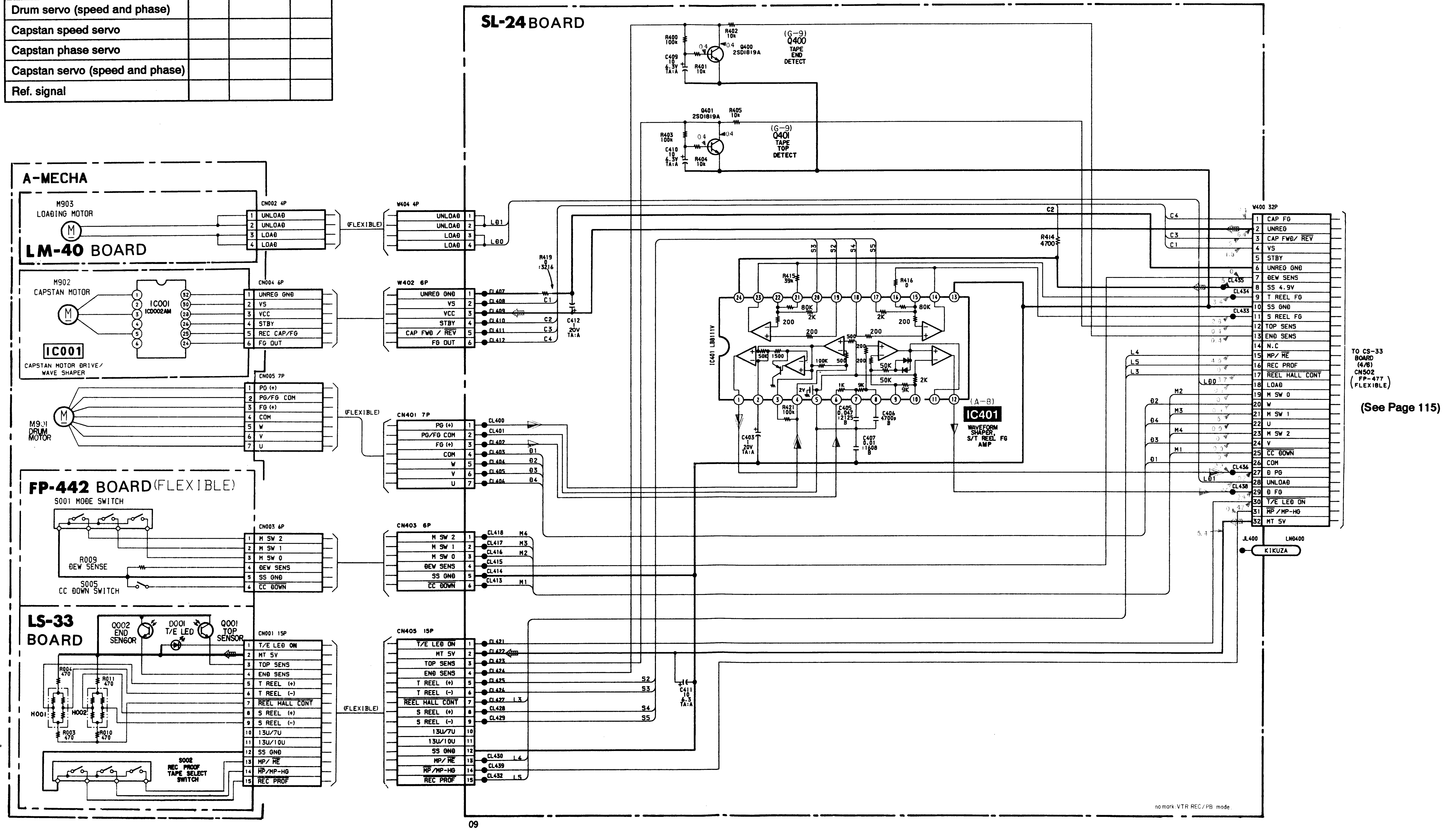

Q002
R010
641-13
H002
R011
D001
1 U
H001
CN001
1
5
10
15
S002
MP/ME
HG
REC PROOF
R003
R004
09
Q001
1-641-641-
13

SL-24 (MECH DRIVE), LS-33 (MECH CONTROL) SCHEMATIC DIAGRAMS

— Ref. No. SL-24 BOARD: 1000 series —

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▶	
Drum servo (speed and phase)			
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)			
Ref. signal			



SL-24 BOARD
A-MECHA
M903 LOADING MOTOR
LM-40 BOARD
M902 CAPSTAN MOTOR
IC001 ICD002AM
IC001 CAPSTAN MOTOR DRIVE/ WAVE SHAPER
M901 DRUM MOTOR
FP-442 BOARD (FLEXIBLE)
S001 MODE SWITCH
R009 DEW SENSE
S005 CC DOWN SWITCH
LS-33 BOARD
Q002 END SENSOR
D001 T/E LED
Q001 TOP SENSOR
H001 H002
S002 REC PROOF TAPE SELECT SWITCH
CN002 4P: UNLOAD, UNLOAD, LOAD, LOAD
CN004 6P: UNREG GND, VS, VCC, STBY, REC CAP/FG, FG OUT
CN005 7P: PG (+), PG/FG COM, FG (+), COM, W, V, U
CN003 6P: M SW 2, M SW 1, M SW 0, DEW SENS, SS GND, CC DOWN
CN001 15P: T/E LED ON, MT 5V, TOP SENS, END SENS, T REEL (+), T REEL (−), REEL HALL CONT, S REEL (+), S REEL (−), 13U/7U, 13U/10U, SS GND, MP/ME, HP/MP-HG, REC PROF
(FLEXIBLE)
W404 4P
W402 6P
CN401 7P
CN403 6P
CN405 15P
Q400 2SD1819A (G-9) TAPE END DETECT
Q401 2SD1819A (G-9) TAPE TOP DETECT
IC401 LB8111V (A-8) WAVEFORM SHAPER, S/T REEL FG AMP
W400 32P: CAP FG, UNREG, CAP FWD/REV, VS, STBY, UNREG GND, DEW SENS, SS 4.9V, T REEL FG, SS GND, S REEL FG, TOP SENS, END SENS, N.C, MP/ME, REC PROF, REEL HALL CONT, LOAD, M SW 0, W, M SW 1, U, M SW 2, V, CC DOWN, COM, D PG, UNLOAD, D FG, T/E LED ON, HP/MP-HG, MT 5V
JL400 LN0400 KIKUZA
TO CS-33 BOARD (4/6) CN502 (FP-477 FLEXIBLE)
(See Page 115)
no mark: VTR REC/PB mode
09

VF-44 (TYPE A) (VIEW FINDER) PRINTED WIRING BOARD

— Ref. No. VF-44 BOARD: 1000 series —

< DIODE >

D501	8-719-024-87	DIODE	LN1261CAL
D502	8-719-024-87	DIODE	LN1261CAL
D503	8-719-400-20	DIODE	MA152WA

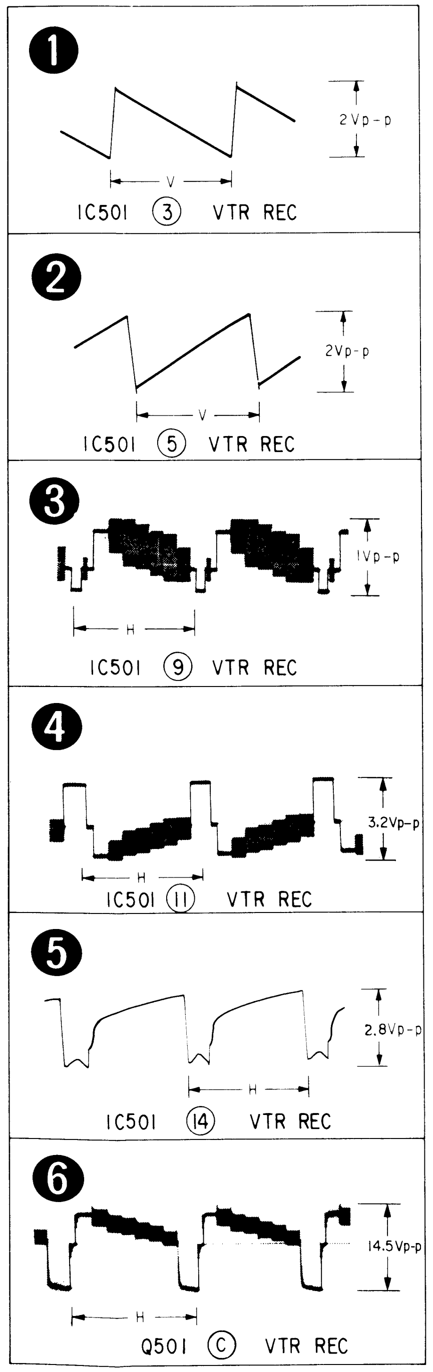
< IC >

IC501	8-759-420-01	IC	AN2512S

< TRANSISTOR >

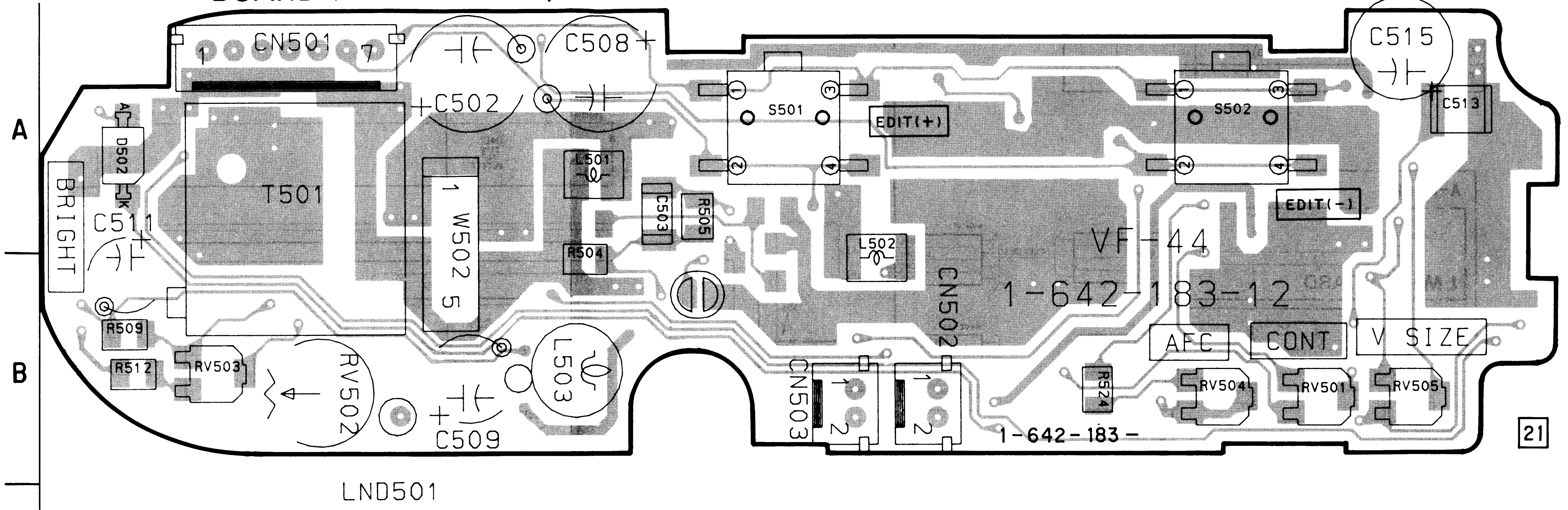
Q501	8-729-216-31	TRANSISTOR	2SA1163-G
Q503	8-729-106-68	TRANSISTOR	2SD1615A-GP

VF-44 BOARD

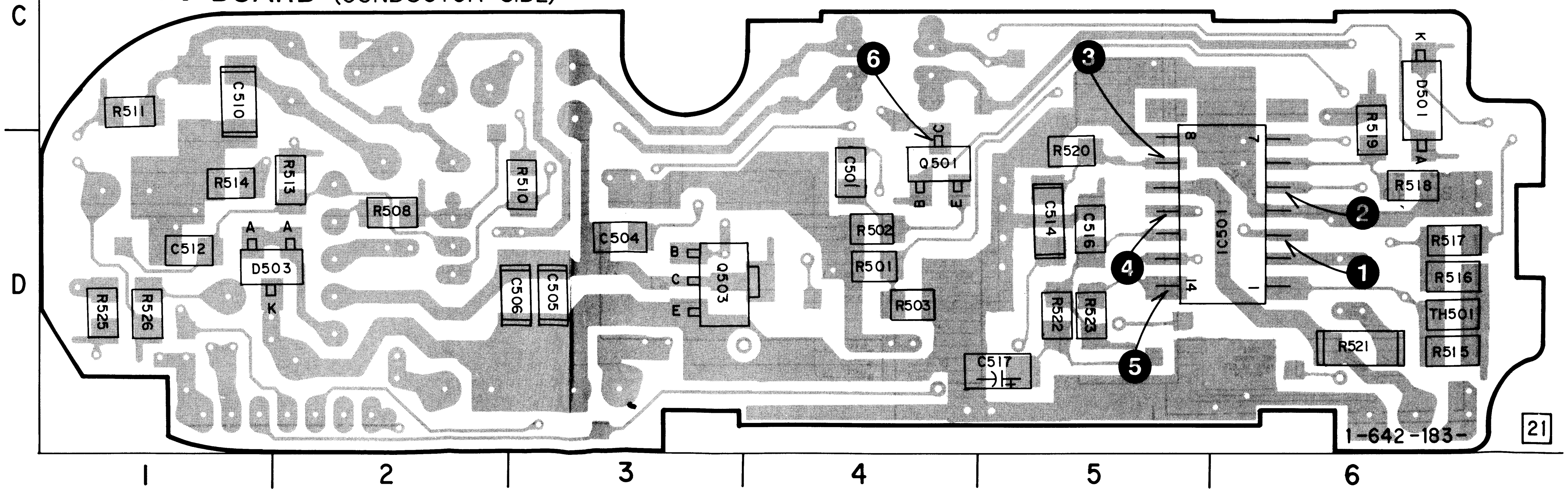


EVF Type A

VF-44 BOARD (COMPONENT SIDE)

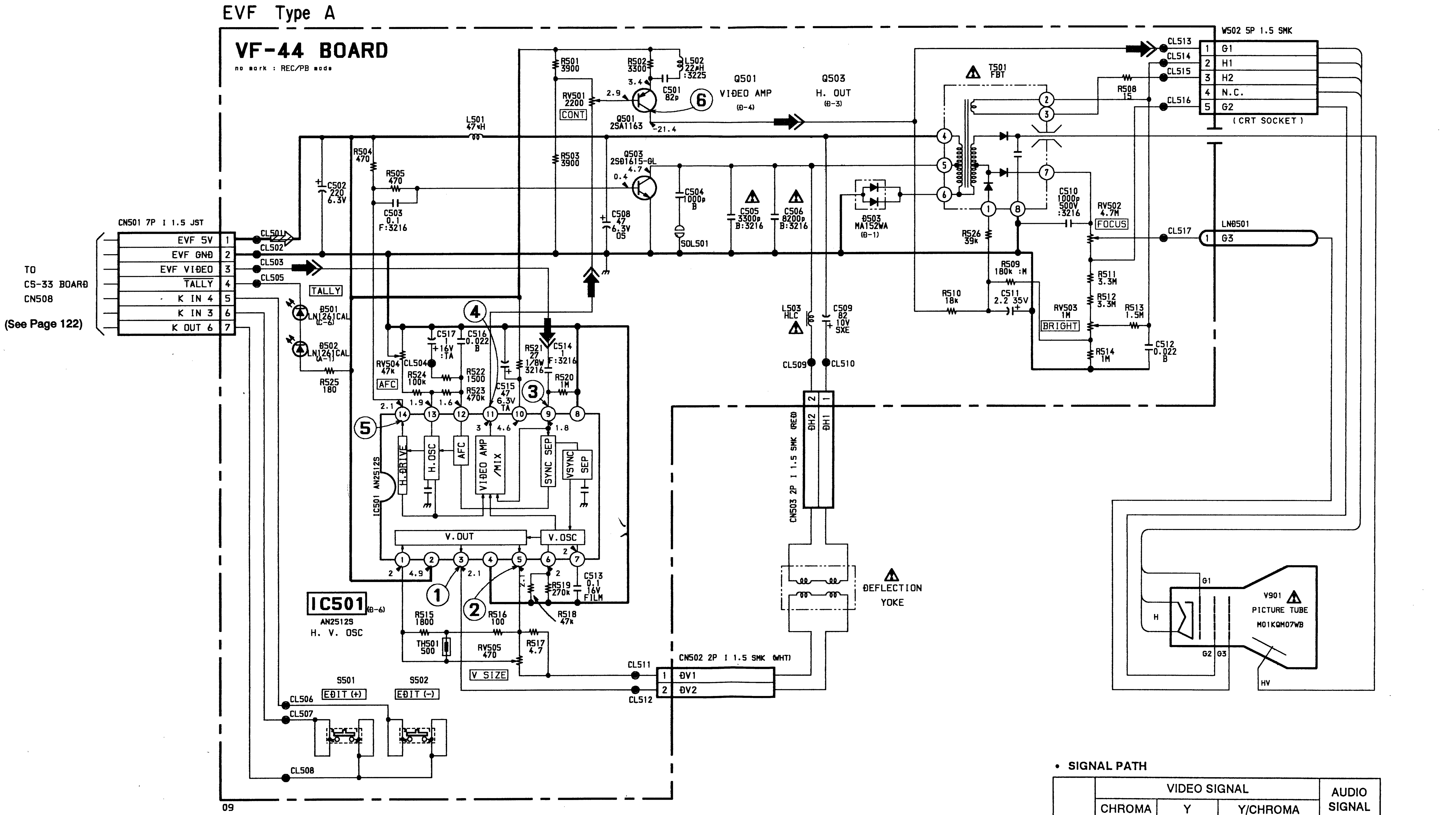

A
B
CN501
1
7
C508
C502
C515
C513
S501
S502
EDIT(+)
EDIT(-)
D502
A
K
BRIGHT
T501
W502
C511
L501
C503
R505
R504
L502
CN502
VF-44
1-642-183-12
AFC
CONT
V SIZE
R509
R512
RV503
RV502
C509
L503
CN503
R524
RV504
RV501
RV505
1-642-183-
21
LND501

VF-44 BOARD (CONDUCTOR SIDE)


C
D
R511
C510
R514
R513
R510
R508
C512
D503
A
K
R525
R526
C506
C505
C504
Q503
B
C
E
❻
C501
Q501
R502
R501
R503
❸
R520
C514
C516
IC501
8
7
14
1
❷
❶
❹
❺
R522
R523
C517
R519
D501
R518
R517
R516
TH501
R521
R515
1-642-183-
21
1
2
3
4
5
6

VF-44 (TYPE A) (VIEW FINDER) SCHEMATIC DIAGRAM

— Ref. No. VF-44 BOARD: 1000 series —


EVF Type A
VF-44 BOARD
no mark : REC/PB mode
TO CS-33 BOARD CN508
(See Page 122)
CN501 7P I 1.5 JST
EVF 5V 1
EVF GND 2
EVF VIDEO 3
TALLY 4
K IN 4 5
K IN 3 6
K OUT 6 7
CL501
CL502
CL503
CL505
TALLY
D501 LN1261CAL (C-6)
D502 LN1261CAL (A-1)
R525 180
C502 220 6.3V
R504 470
R505 470
C503 0.1 F:3216
L501 47µH
R501 3900
RV501 2200
CONT
R503 3900
R502 3300
L502 22µH :3225
C501 82p
Q501 2SA1163
Q501 VIDEO AMP (D-4)
Q503 2SD1615-GL
Q503 H. OUT (D-3)
C508 47 6.3V OS
C504 1000p B
SOL501
C505 3300p B:3216
C506 8200p B:3216
D503 MA152WA (D-1)
T501 FBT
R526 39k
R509 180k :M
R510 18k
C511 2.2 35V
C510 1000p 500V :3216
RV502 4.7M
FOCUS
R511 3.3M
R512 3.3M
RV503 1M
BRIGHT
R513 1.5M
R514 1M
C512 0.022 B
R508 15
W502 5P 1.5 SMK
CL513
CL514
CL515
CL516
1 G1
2 H1
3 H2
4 N.C.
5 G2
(CRT SOCKET)
CL517
LND501
1 G3
L503 HLC
C509 82 10V SXE
CL509
CL510
CN503 2P I 1.5 SMK (RED)
DH2
DH1
DEFLECTION YOKE
V901 PICTURE TUBE M01KQM07WB
G1
H
G2 G3
HV
C517 1 16V :TA
C516 0.022 B
RV504 47k
AFC
CL504
R524 100k
R522 1500
R523 470k
C515 47 6.3V TA
R521 27 1/8W 3216
C514 1 F:3216
R520 1M
IC501 AN2512S
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
V.OUT
V.OSC
R519 270k
R518 47k
C513 0.1 16V FILM
IC501 (D-6)
AN2512S
H. V. OSC
R515 1800
R516 100
TH501 500
RV505 470
R517 4.7
V SIZE
CL511
CL512
CN502 2P I 1.5 SMK (WHT)
1 DV1
2 DV2
S501
EDIT (+)
S502
EDIT (–)
CL506
CL507
CL508
①
②
③
④
⑤
⑥
09

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC		➡		
PB				

VF-51 (TYPE B) (VIEW FINDER) PRINTED WIRING BOARD

— Ref. No. VF-51 BOARD: 6000 series —

< DIODE >

D501	8-719-024-87	DIODE	LN1261CAL
D502	8-719-024-87	DIODE	LN1261CAL
D503	8-719-400-20	DIODE	MA152WA

< IC >

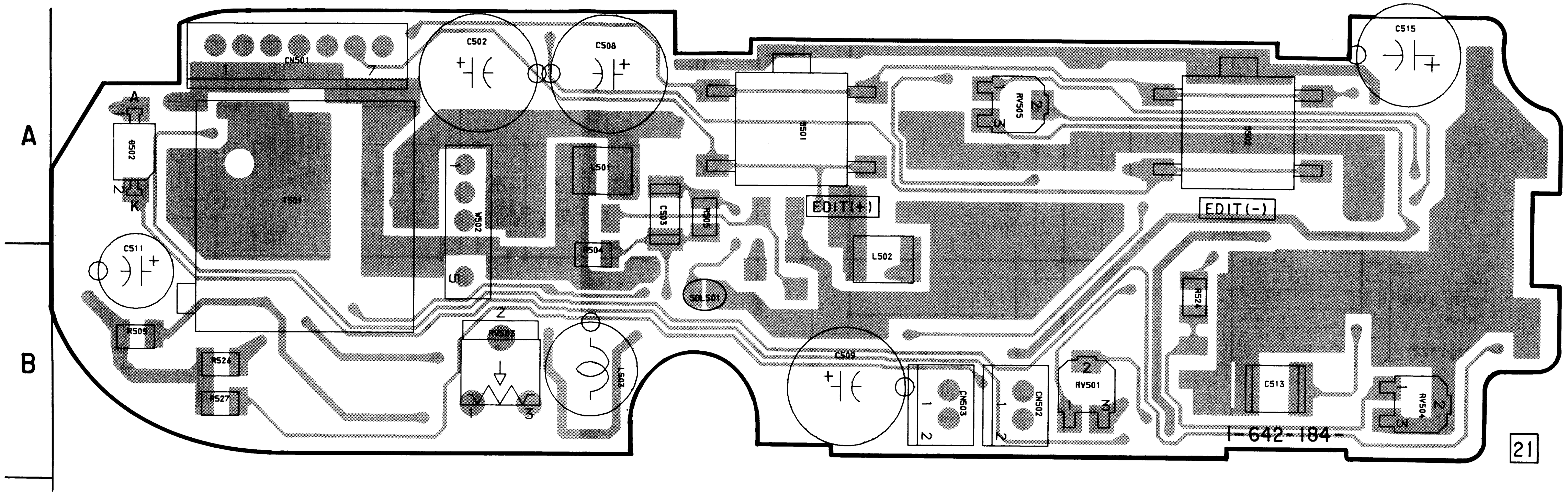
IC501	8-759-420-01	IC	AN2512S

< TRANSISTOR >

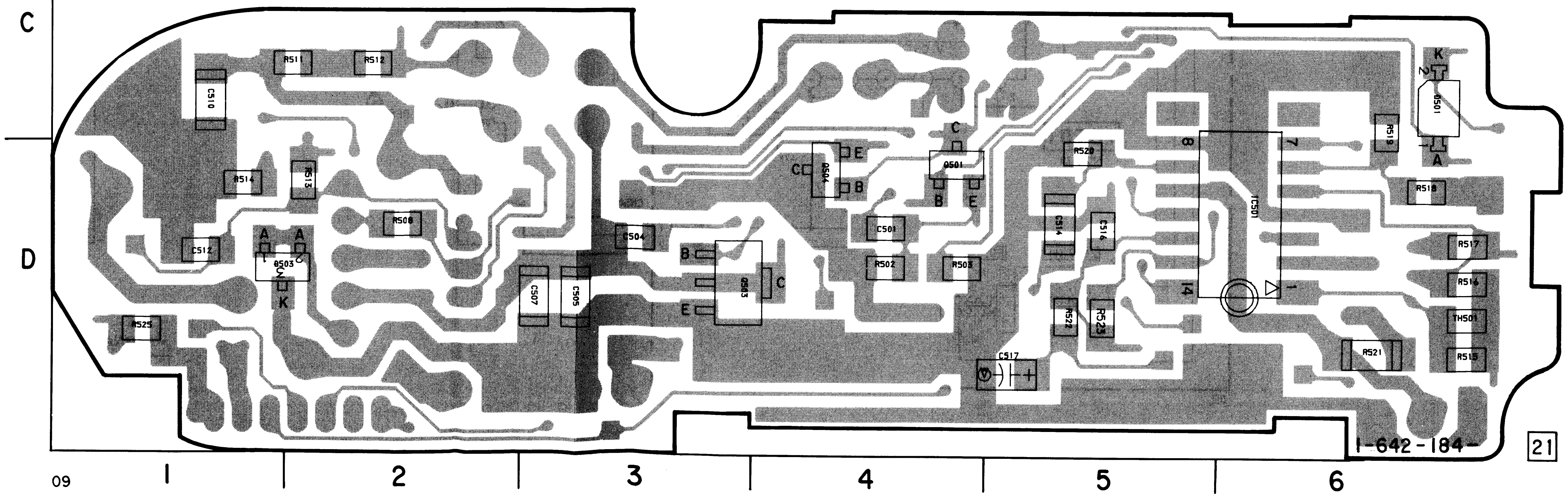
Q501	8-729-216-31	TRANSISTOR	2SA1163-G
Q503	8-729-106-68	TRANSISTOR	2SD1615A-GP
Q504	8-729-120-28	TRANSISTOR	2SC1623-L5L6

EVF Type B

VF-51 BOARD (COMPONENT SIDE)

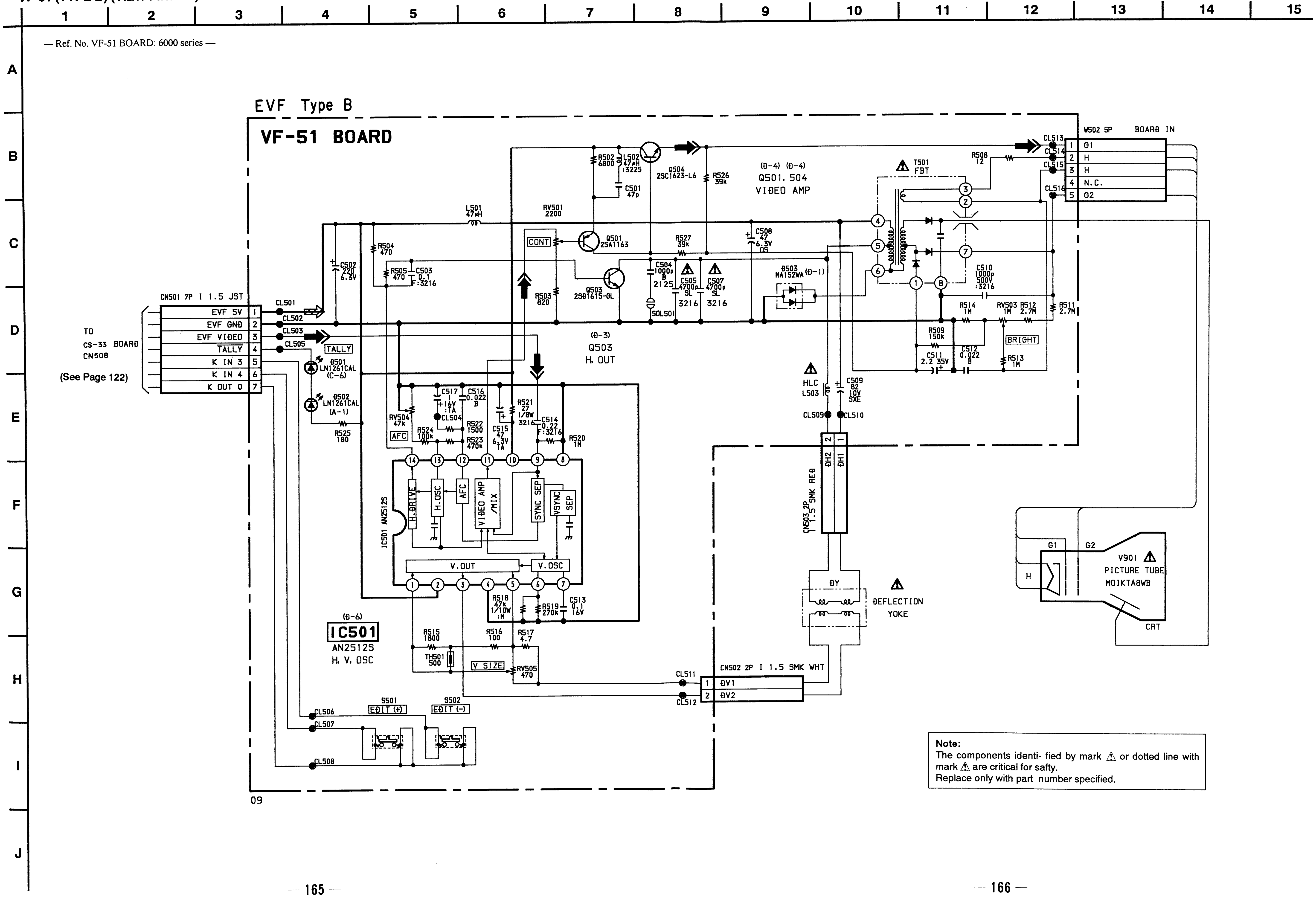

A
B
CN501
1
7
C502
C508
C515
D502
A
K
T501
W502
L501
C503
R505
R504
S501
EDIT(+)
L502
RV505
S502
EDIT(-)
C511
R509
R526
R527
RV503
L503
SOL501
C509
CN503
CN502
RV501
R524
C513
RV504
1-642-184-
21

VF-51 BOARD (CONDUCTOR SIDE)


C
D
R511
R512
C510
R514
R513
R508
C512
D503
A
K
R525
C507
C505
C504
Q503
B
C
E
Q504
C501
R502
R503
Q501
R520
C514
C516
R522
R523
C517
IC501
8
7
14
1
R519
D501
K
A
R518
R517
R516
TH501
R515
R521
1-642-184-
21
09
1
2
3
4
5
6

VF-51 (TYPE B) (VIEW FINDER) SCHEMATIC DIAGRAM

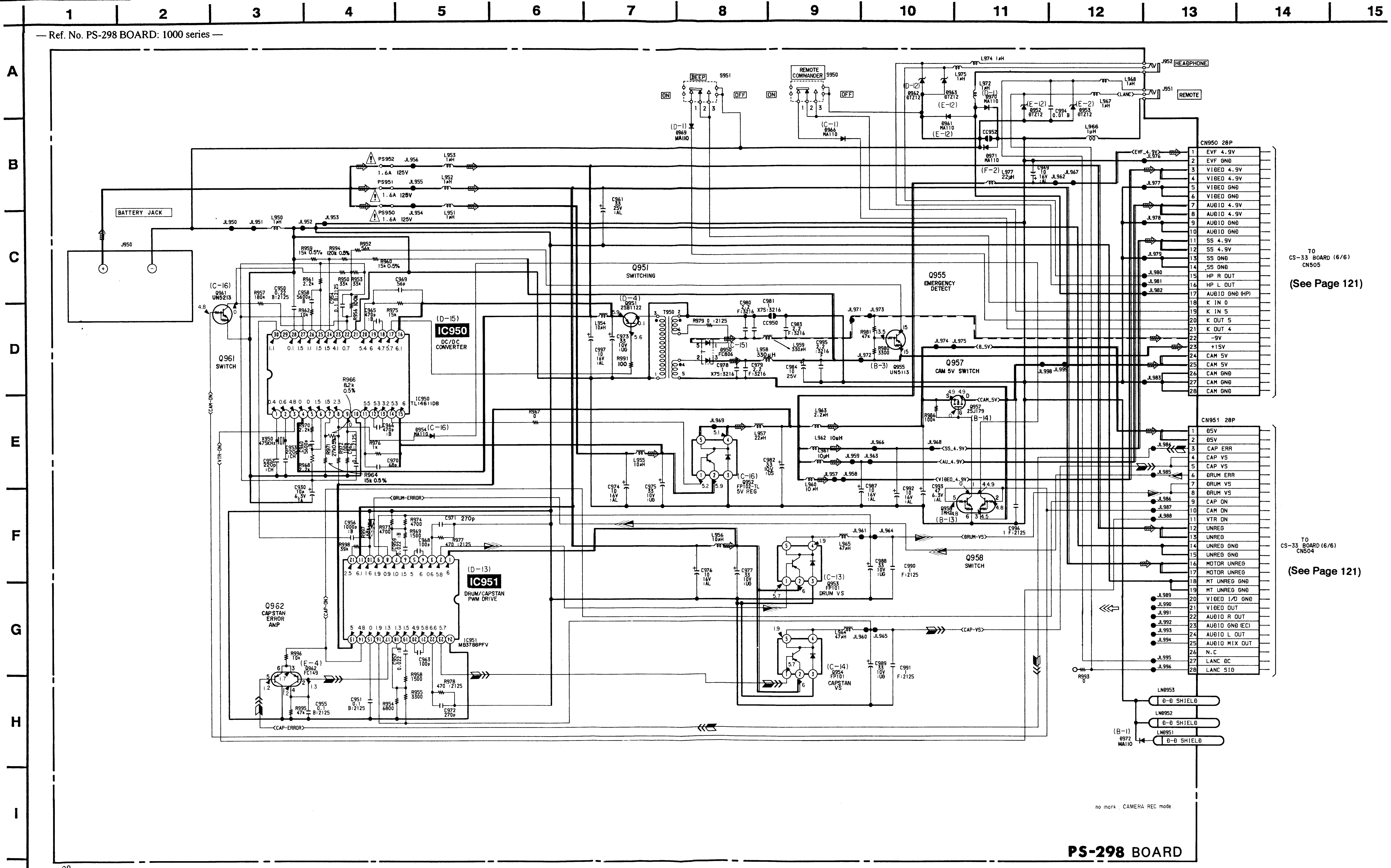
— Ref. No. VF-51 BOARD: 6000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
EVF Type B
VF-51 BOARD
TO CS-33 BOARD CN508
(See Page 122)
CN501 7P I 1.5 JST
1 EVF 5V
2 EVF GND
3 EVF VIDEO
4 TALLY
5 K IN 3
6 K IN 4
7 K OUT 0
CL501
CL502
CL503
CL505
TALLY
D501 LN1261CAL (C-6)
D502 LN1261CAL (A-1)
R525 180
L501 47μH
RV501 2200
CONT
R502 6800
L502 47μH :3225
C501 47p
Q504 2SC1623-L6
R526 39k
(D-4) (D-4)
Q501, 504
VIDEO AMP
Q501 2SA1163
Q503 2SB1615-QL
R503 820
R504 470
R505 470
C503 0.1 F:3216
C502 220 6.3V
R527 39k
C504 1000p B 2125
C505 4700p SL 3216
C507 4700p SL 3216
SOL501
C508 47 6.3V OS
D503 MA152WA (D-1)
T501 FBT
R508 12
C510 1000p 500V :3216
R514 1M
RV503 1M
R512 2.7M
R511 2.7M
R509 150k
C511 2.2 35V
C512 0.022 B
BRIGHT
R513 1M
(D-3)
Q503
H. OUT
HLC L503
C509 82 10V SXE
CL509
CL510
CL513
CL514
CL515
CL516
W502 5P BOARD IN
1 G1
2 H
3 H
4 N.C.
5 G2
C517 1 16V :TA
C516 0.022 B
CL504
RV504 47k
AFC
R524 100k
R522 1500
R523 470k
C515 47 6.3V TA
R521 27 1/8W 3216
C514 0.22 F:3216
R520 1M
IC501 AN2512S
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
V.OUT
V.OSC
R518 47k 1/10W :M
R519 270k
C513 0.1 16V
R515 1800
R516 100
R517 4.7
TH501 500
V SIZE
RV505 470
(D-6)
IC501
AN2512S
H. V. OSC
CN503 2P I 1.5 SMK RED
1 DH1
2 DH2
DY
DEFLECTION YOKE
CN502 2P I 1.5 SMK WHT
1 DV1
2 DV2
CL511
CL512
G1
G2
H
V901
PICTURE TUBE
M01KTA8WB
CRT
S501 EDIT (+)
S502 EDIT (-)
CL506
CL507
CL508
09

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

PS-298 (POWER REG) SCHEMATIC DIAGRAM

— Ref. No. PS-298 BOARD: 1000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
BATTERY JACK
J950
Q961 UN5213 SWITCH
IC950 DC/DC CONVERTER
IC950 TL1461IDB
Q951 2SB1122 SWITCHING
T950
Q955 EMERGENCY DETECT
Q957 CAM 5V SWITCH
Q957 2SJ179
Q952 FP102-TL 5V REG
Q953 FP101 DRUM VS
Q954 FP101 CAPSTAN VS
Q958 SWITCH
IC951 DRUM/CAPSTAN PWM DRIVE
IC951 MB3788PFV
Q962 CAPSTAN ERROR AMP
Q962 FC149
PS952 1.6A 125V
PS951 1.6A 125V
PS950 1.6A 125V
BEEP S951 ON OFF
REMOTE COMMANDER S950 ON OFF
J952 HEADPHONE
J951 REMOTE
CN950 28P
1 EVF 4.9V
2 EVF GND
3 VIDEO 4.9V
4 VIDEO 4.9V
5 VIDEO GND
6 VIDEO GND
7 AUDIO 4.9V
8 AUDIO 4.9V
9 AUDIO GND
10 AUDIO GND
11 SS 4.9V
12 SS 4.9V
13 SS GND
14 SS GND
15 HP R OUT
16 HP L OUT
17 AUDIO GND (HP)
18 K IN 0
19 K IN 5
20 K OUT 5
21 K OUT 4
22 -9V
23 +15V
24 CAM 5V
25 CAM 5V
26 CAM GND
27 CAM GND
28 CAM GND
TO CS-33 BOARD (6/6) CN505
(See Page 121)
CN951 28P
1 D5V
2 D5V
3 CAP ERR
4 CAP VS
5 CAP VS
6 DRUM ERR
7 DRUM VS
8 DRUM VS
9 CAP ON
10 CAM ON
11 VTR ON
12 UNREG
13 UNREG
14 UNREG GND
15 UNREG GND
16 MOTOR UNREG
17 MOTOR UNREG
18 MT UNREG GND
19 MT UNREG GND
20 VIDEO I/O GND
21 VIDEO OUT
22 AUDIO R OUT
23 AUDIO GND (EC)
24 AUDIO L OUT
25 AUDIO MIX OUT
26 N.C
27 LANC DC
28 LANC SIG
TO CS-33 BOARD (6/6) CN504
(See Page 121)
LN0953 D-D SHIELD
LN0952 D-D SHIELD
LN0951 D-D SHIELD
PS-298 BOARD
09

no mark : CAMERA REC mode

Note:
The components identi- fied by mark ⚠ or dotted line with mark ⚠ are critical for safty.
Replace only with part number specified.

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum servo (speed and phase)		⋙	
Capstan servo (speed and phase)		➾⟫	

PS-298 (POWER) PRINTED WIRING BOARD

— Ref. No. PS-298 BOARD: 1000 series —

< DIODE >

D950	8-719-989-33	DIODE	FC806
D952	8-719-977-34	DIODE	DTZ12
D953	8-719-977-34	DIODE	DTZ12
D954	8-719-404-46	DIODE	MA110
D961	8-719-404-46	DIODE	MA110
D962	8-719-977-34	DIODE	DTZ12
D963	8-719-977-34	DIODE	DTZ12
D966	8-719-404-46	DIODE	MA110
D969	8-719-404-46	DIODE	MA110
D970	8-719-404-46	DIODE	MA110
D971	8-719-404-46	DIODE	MA110
D972	8-719-404-46	DIODE	MA110

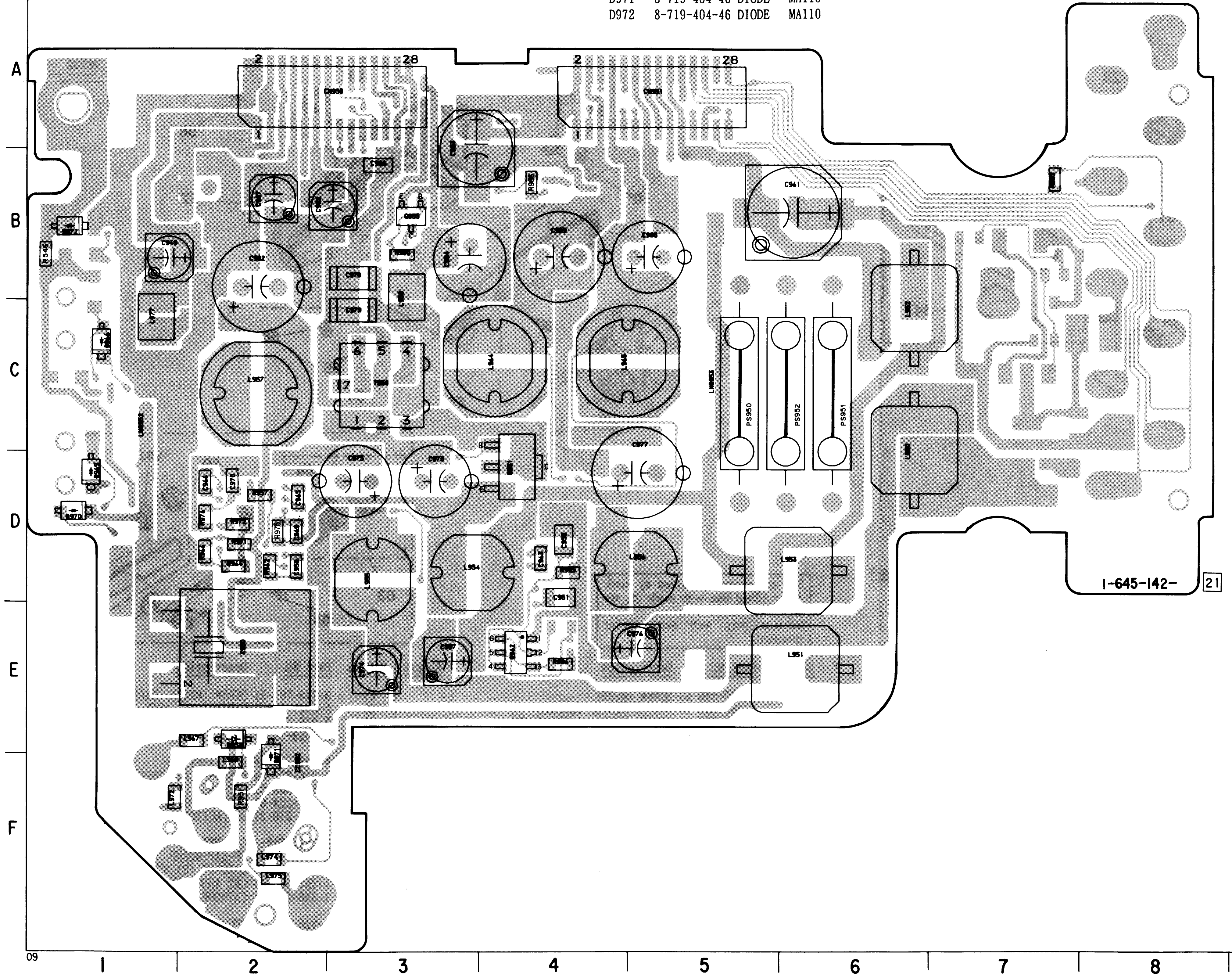
< IC >

IC950	8-759-064-01	IC	TL1461IDB-E2
IC951	8-759-062-00	IC	MB3788PFV-G-BND-ER

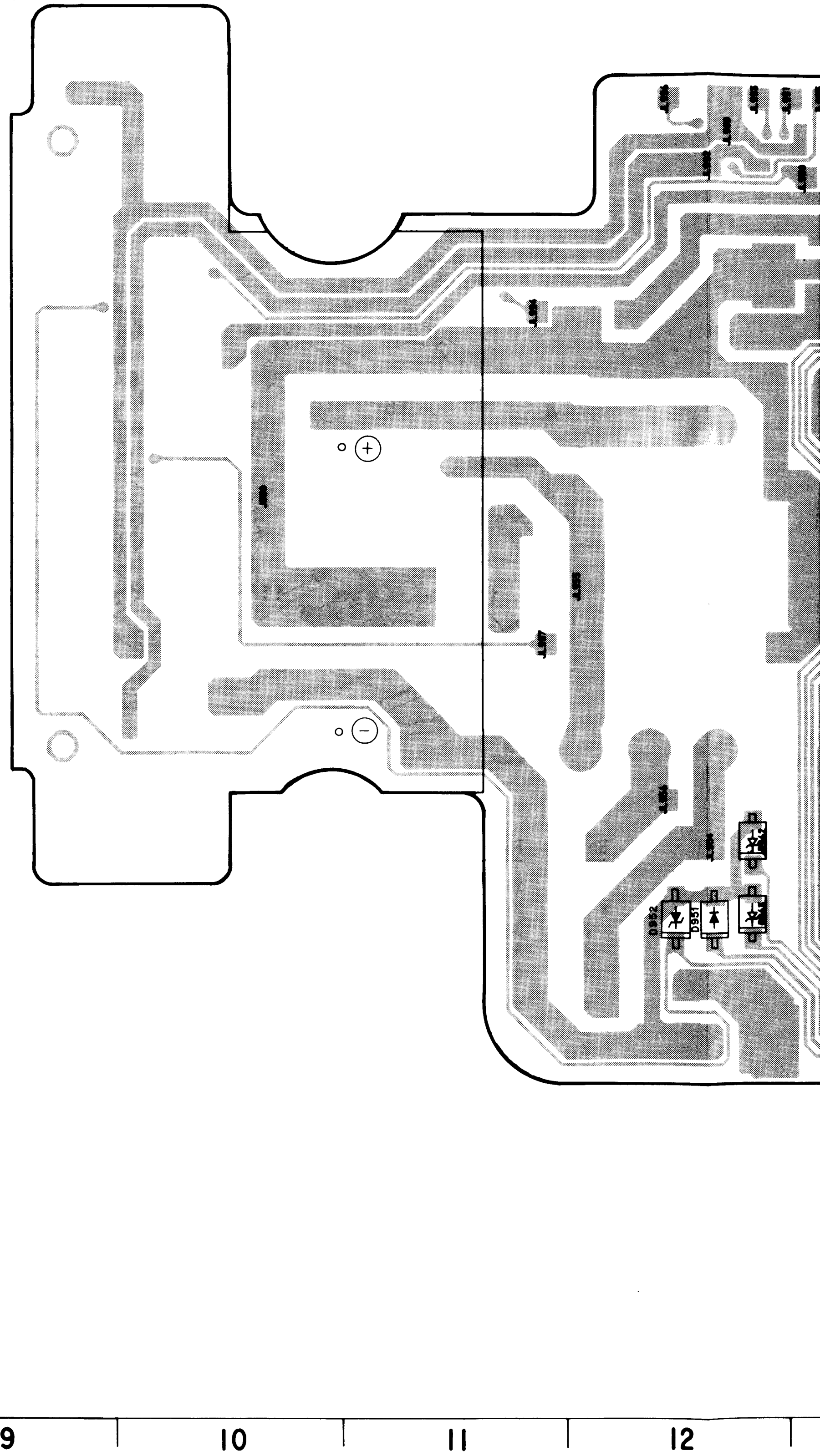
< TRANSISTOR >

Q951	8-729-804-41	TRANSISTOR	2SB1122-S
Q952	8-729-823-84	TRANSISTOR	FP102
Q953	8-729-823-82	TRANSISTOR	FP101
Q954	8-729-823-82	TRANSISTOR	FP101
Q955	8-729-403-35	TRANSISTOR	UN5113
Q957	8-729-011-26	TRANSISTOR	2SJ179
Q958	8-729-920-48	TRANSISTOR	IMH2
Q961	8-729-402-42	TRANSISTOR	UN5213
Q962	8-729-823-95	TRANSISTOR	FC149

PS-298 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
CN950
CN951
C941
PS950
PS952
PS951
L957
L944
L945
L954
L955
L956
L953
L951
T950
1-645-142- 21
09
1
2
3
4
5
6
7
8

PS-298 BOARD (CONDUCTOR SIDE)



< DIODE >

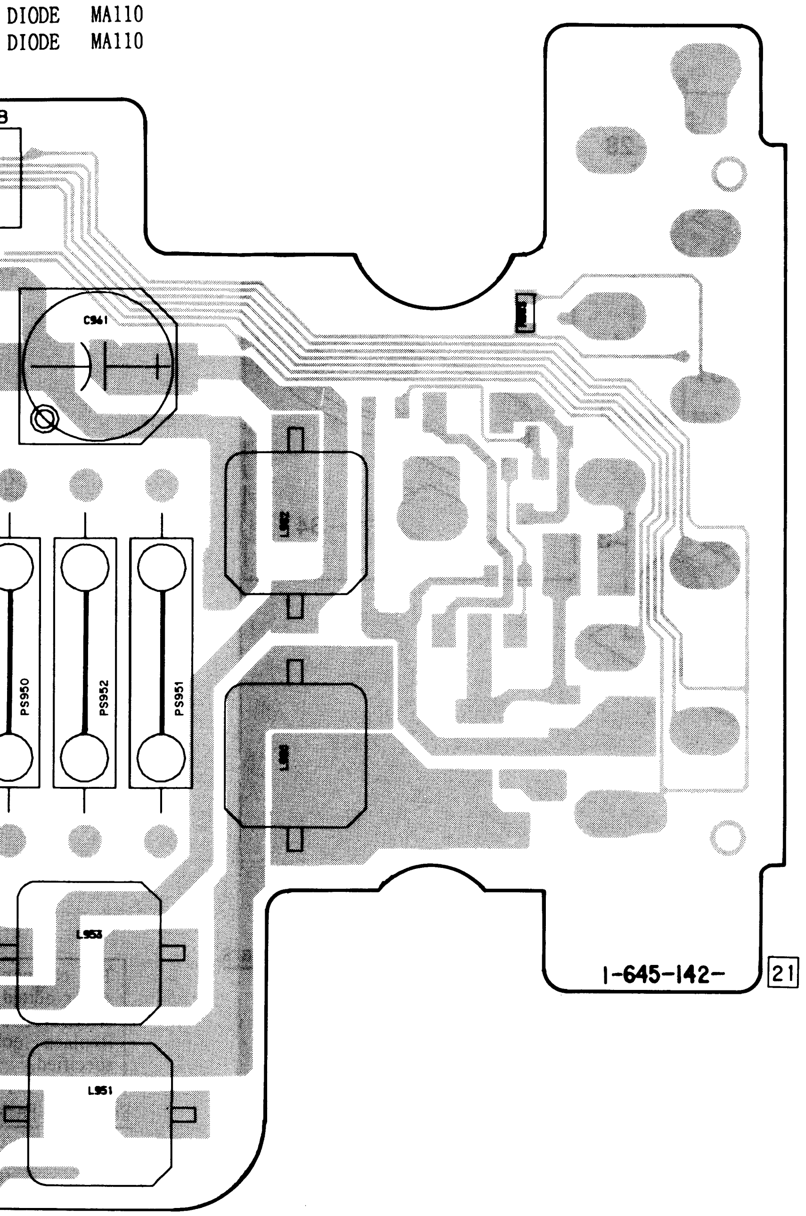
DIODE	FC806
DIODE	DTZ12
DIODE	DTZ12
DIODE	MA110
DIODE	MA110
DIODE	DTZ12
DIODE	DTZ12
DIODE	MA110
DIODE	MA110
DIODE	MA110
DIODE	MA110
DIODE	MA110

< IC >

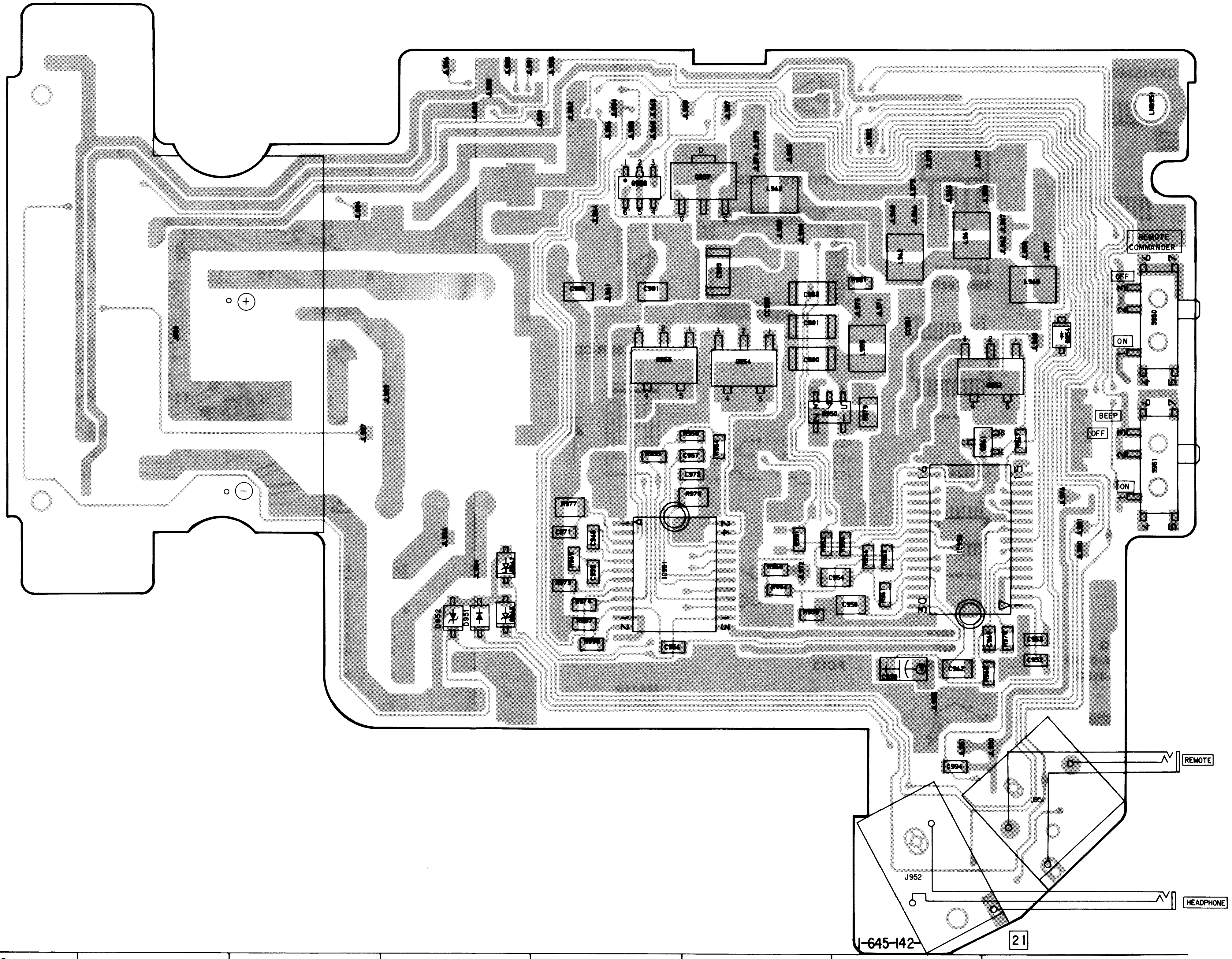
IC950	8-759-064-01	IC	TL1461IDB-E2
IC951	8-759-062-00	IC	MB3788PFV-G-BND-ER

< TRANSISTOR >

Q951	8-729-804-41	TRANSISTOR	2SB1122-S
Q952	8-729-823-84	TRANSISTOR	FP102
Q953	8-729-823-82	TRANSISTOR	FP101
Q954	8-729-823-82	TRANSISTOR	FP101
Q955	8-729-403-35	TRANSISTOR	UN5113
Q957	8-729-011-26	TRANSISTOR	2SJ179
Q958	8-729-920-48	TRANSISTOR	IMH2
Q961	8-729-402-42	TRANSISTOR	UN5213
Q962	8-729-823-95	TRANSISTOR	FC149


C941
PS950
PS952
PS951
L953
L951
1-645-142-
21

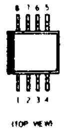
PS-298 BOARD (CONDUCTOR SIDE)


REMOTE COMMANDER
OFF
ON
S950
BEEP
OFF
ON
S951
IC950
IC951
Q952
Q953
Q954
Q957
Q958
J951
J952
REMOTE
HEADPHONE
1-645-142-
21

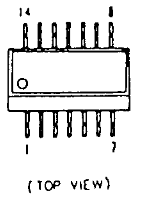
6
7
8
9
10
11
12
13
14
15
16

4-3. SEMICONDUCTORS

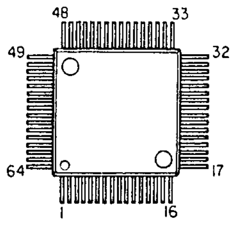
AK6420F
LM358D



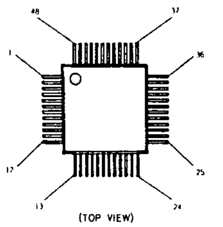
AN2512S


14
8
1
7
(TOP VIEW)

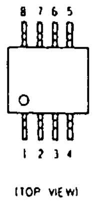
CXA1207R
CXD1256R


48
33
49
32
64
17
1
16

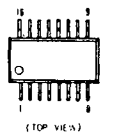
CXA1208R
CXA-1488R
CXA1507BR
CXA1509AR
TB1206F



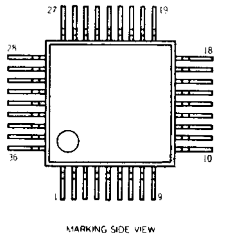
CXA1211M


8 7 6 5
1 2 3 4
(TOP VIEW)

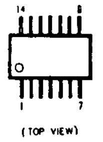
CXA1448N
CXA1452N
M62353GP
MB86168PFV
µPD6456GS-630



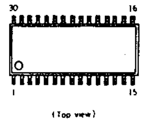
CXA1536Q


MARKING SIDE VIEW

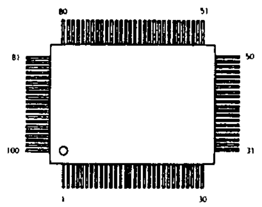
TL1596CDB


14
8
1
7
(TOP VIEW)

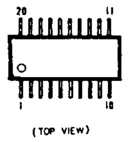
CXA1618M
CXA8006M
TL1461


30
16
1
15
(Top view)

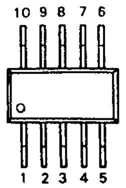
CXD2100AQ
CXP80624A-016Q
CXP80624-419Q


80
51
81
50
100
31
1
30

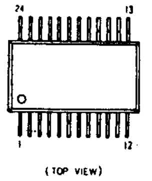
CXD2104N
M62352GP
MPC1720M
MPC1724M
µPD7564G-540


20
11
1
10
(TOP VIEW)

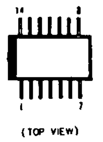
LB1830M


10 9 8 7 6
1 2 3 4 5

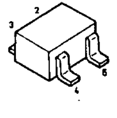
LB8111V
MB3788PFV


24
13
1
12
(TOP VIEW)

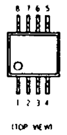
LM324D


14
8
1
7
(TOP VIEW)

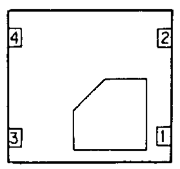
NJM2107F
SC7S04F
TC7SU04F



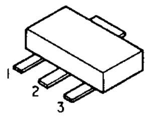
NJM2234M
NJM2235M



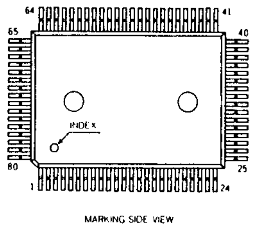
RS-20E-T



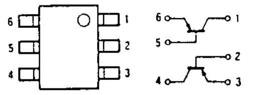
S-81350HG-KD



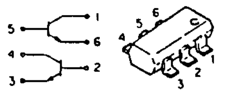
µPD75316GF-355-3B9


64
41
65
40
80
25
1
24
INDEX
MARKING SIDE VIEW

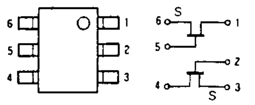
FC149
XN4401



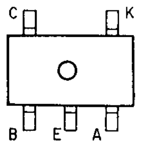
1MH2



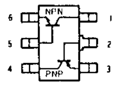
FC13



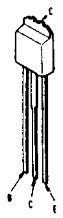
FP101
FP102



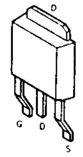
1MD2



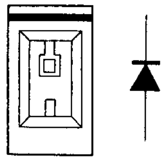
2SB1202FAST



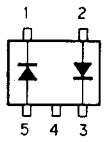
2SJ179



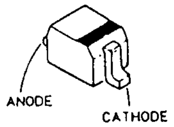
CL-150UR-CD



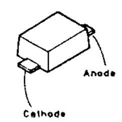
FC806-TL



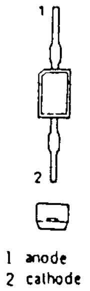
MA110
DTZ12


ANODE
CATHODE

MA728
02DZ13-TPH3


Anode
Cathode

LN1261CAL


1
2
1 anode
2 cathode

SECTION 5

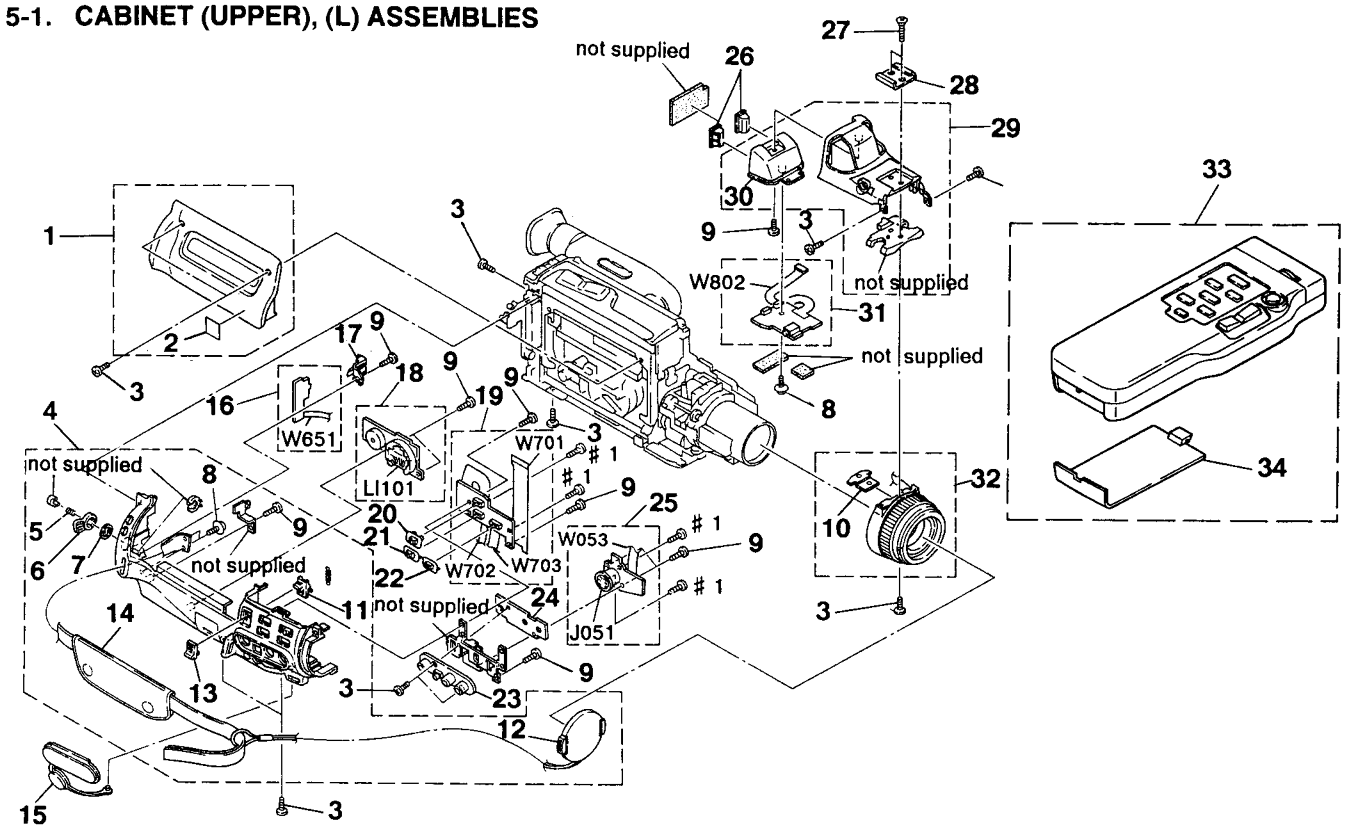
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

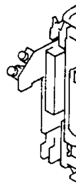
5-1. CABINET (UPPER), (L) ASSEMBLIES


not supplied
26
27
28
29
30
31
32
33
34
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
W802
W651
LI101
W701
W702
W703
W053
J051
# 1
not supplied

Ref. No.	Part No.	Description	Remark
1	X-3942-581-1	LID ASSY, CASSETTE	
∗ 2	3-703-713-41	STICKER, SONY SYMBOL (10)	
3	3-719-381-01	SCREW (M2X4)	
4	A-7082-321-A	CABINET (L) BLOCK ASSY (AEP, UK)	
4	A-7082-406-A	CABINET (L) BLOCK ASSY (E, Australian)	
5	3-578-221-00	SPRING, COMPRESSION	
6	3-942-985-01	KNOB, STAND-BY	
7	3-736-364-01	SPRING	
8	3-669-480-21	+ PTPWH 2	
9	3-713-790-01	SCREW (M2X5), TAPPING, P3	
10	3-946-172-01	SHEET METAL, SHOE	
11	3-949-233-01	LOCK, EJECT	
12	A-7091-810-A	CAP BLOCK ASSY, LENS	
13	3-949-193-01	BUTTON, EJECT	
14	3-736-807-01	BELT, GRIP	
15	3-949-249-01	LID, JACK	
16	A-7071-763-A	SW-202P BOARD, COMPLETE	
17	3-949-246-01	RETAINER, SW PC BOARD	
18	A-7071-779-A	ZB-1P BOARD, COMPLETE	
19	A-7071-781-A	EJ-26P BOARD, COMPLETE (AEP, UK)	
19	A-7071-837-A	EJ-26P BOARD, COMPLETE (E, Australian)	
20	3-949-247-01	BUTTON, HI8	

Ref. No.	Part No.	Description	Remark
21	3-949-230-01	BUTTON, EDIT	
22	3-949-231-01	BUTTON, INPUT OUTPUT (E, Australian)	
23	1-537-415-11	TERMINAL BOAD (E, Australian)	
24	A-7071-783-A	JK-83P BOARD, COMPLETE	
25	A-7071-782-A	SJ-11P BOARD, COMPLETE	
26	1-542-162-11	MICROHONE UNIT	
27	3-948-809-31	SCREW (M2X12)	
28	3-724-511-01	SHOE, ACCESSORY	
29	X-3941-951-1	CABINET (UPPER) ASSY	
30	X-3941-949-1	HOLDER ASSY, MICROPHONE	
31	A-7063-475-A	MA-131P BOARD, COMPLETE	
32	1-223-224-11	RING, MF (WITH TACT SWITCH)	
33	1-693-017-11	REMOTE COMMANDER (CAM CODER) (RMT-509)	
34	3-947-500-01	LID, BATTERY CASE	
J051	1-566-850-31	CONNECTOR, (S) TERMINAL 4P	
LI101	1-550-104-11	HOLDER, BATTERY	
W053	1-696-803-11	CABLE, FLAT (FFC-72)	
W651	1-696-802-11	CABLE, FLAT (FFC-73)	
W701	1-645-161-11	FP-476 FLEXIBLE BOARD	
W702	1-645-164-11	FP-553 FLEXIBLE BOARD	
W703	1-645-163-11	FP-552 FLEXIBLE BOARD	
W802	1-645-162-11	FP-162 FLEXIBLE BOARD	

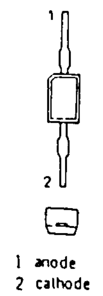
5-2. CA



The compone
⚠ or dotted
critical for saf
Replace only
specified.

Ref. No.	Part
51	3-74
52	1-46
53	3-71
∗ 54	3-95
∗ 54	3-95
∗ 55	3-70
56	3-71
57	X-39
57	X-39
58	3-95
59	3-95
60	3-94
61	3-94
62	X-39
63	A-70
64	3-94

LN1261CAL



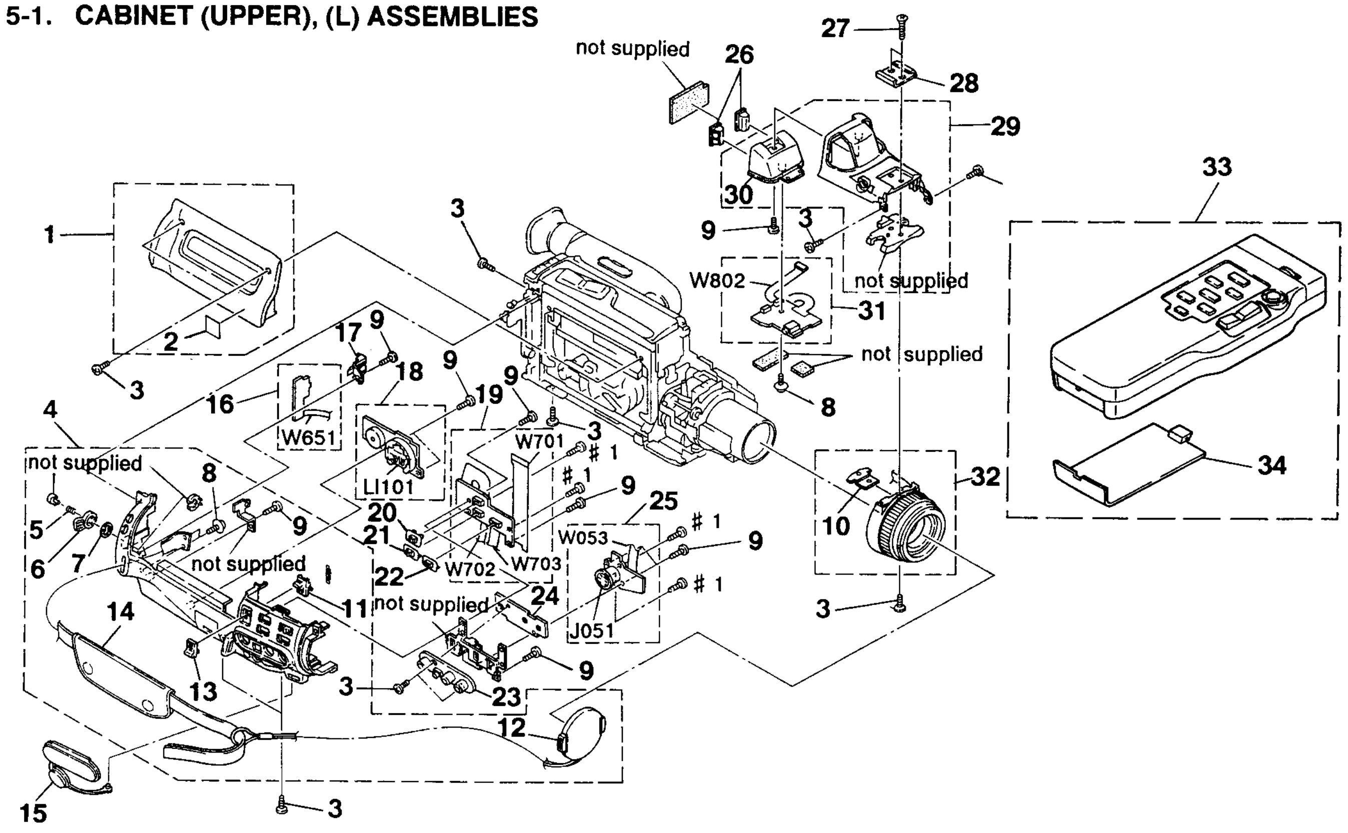
SECTION 5
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

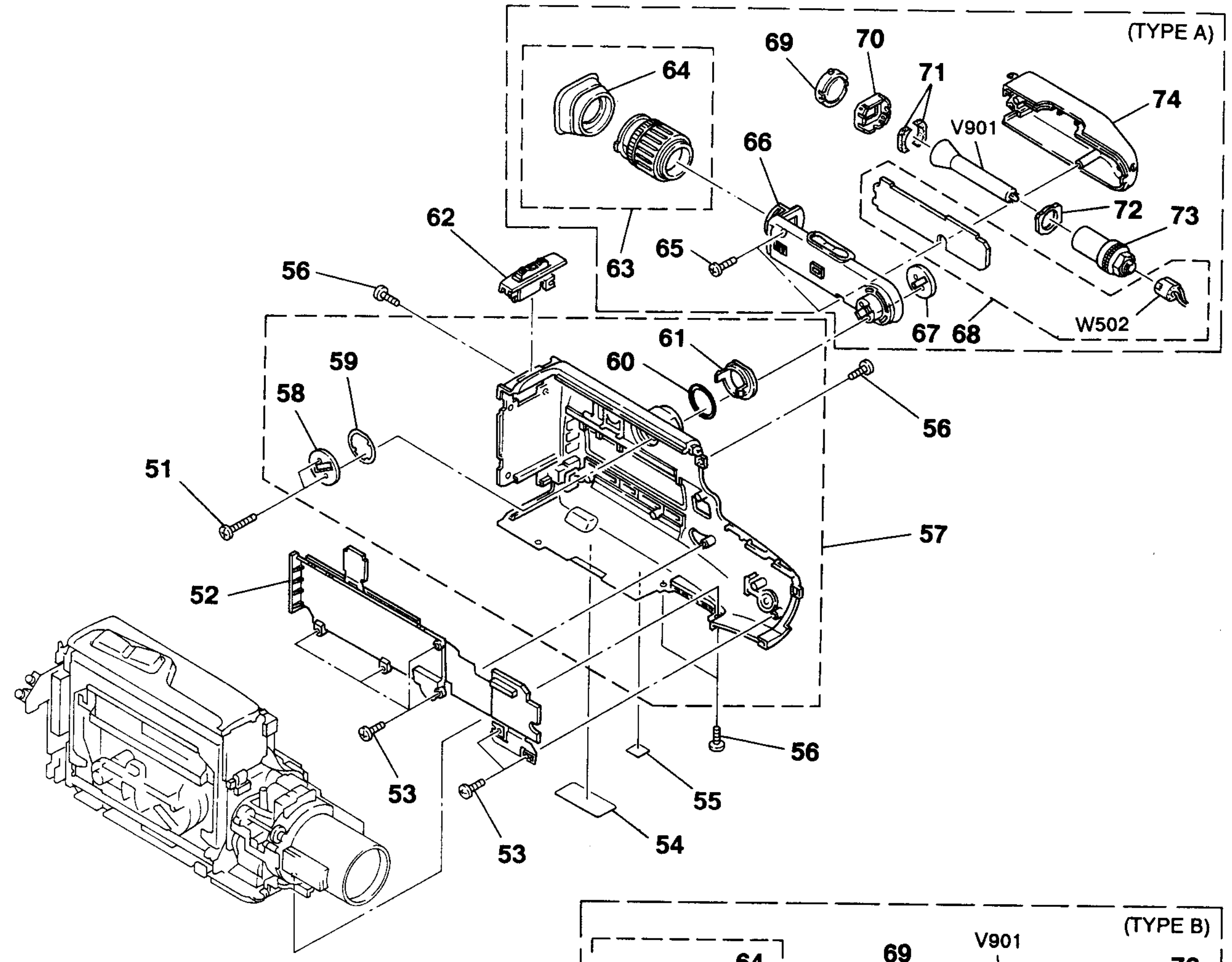
5-1. CABINET (UPPER), (L) ASSEMBLIES

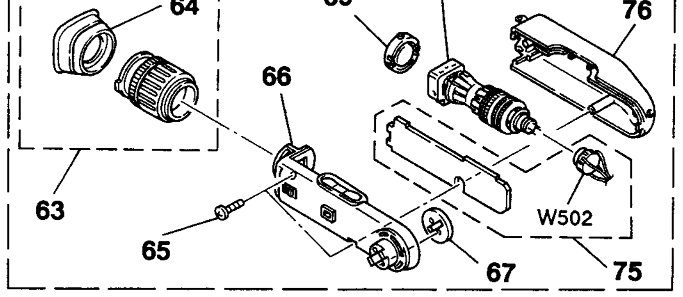


Ref. No.	Part No.	Description	Remark
1	X-3942-581-1	LID ASSY, CASSETTE	
∗ 2	3-703-713-41	STICKER, SONY SYMBOL (10)	
3	3-719-381-01	SCREW (M2X4)	
4	A-7082-321-A	CABINET (L) BLOCK ASSY (AEP, UK)	
4	A-7082-406-A	CABINET (L) BLOCK ASSY (E, Australian)	
5	3-578-221-00	SPRING, COMPRESSION	
6	3-942-985-01	KNOB, STAND-BY	
7	3-736-364-01	SPRING	
8	3-669-480-21	+ PTPWH 2	
9	3-713-790-01	SCREW (M2X5), TAPPING, P3	
10	3-946-172-01	SHEET METAL, SHOE	
11	3-949-233-01	LOCK, EJECT	
12	A-7091-810-A	CAP BLOCK ASSY, LENS	
13	3-949-193-01	BUTTON, EJECT	
14	3-736-807-01	BELT, GRIP	
15	3-949-249-01	LID, JACK	
16	A-7071-763-A	SW-202P BOARD, COMPLETE	
17	3-949-246-01	RETAINER, SW PC BOARD	
18	A-7071-779-A	ZB-1P BOARD, COMPLETE	
19	A-7071-781-A	EJ-26P BOARD, COMPLETE (AEP, UK)	
19	A-7071-837-A	EJ-26P BOARD, COMPLETE (E, Australian)	
20	3-949-247-01	BUTTON, HI8	

Ref. No.	Part No.	Description	Remark
21	3-949-230-01	BUTTON, EDIT	
22	3-949-231-01	BUTTON, INPUT OUTPUT (E, Australian)	
23	1-537-415-11	TERMINAL BOAD (E, Australian)	
24	A-7071-783-A	JK-83P BOARD, COMPLETE	
25	A-7071-782-A	SJ-11P BOARD, COMPLETE	
26	1-542-162-11	MICROHONE UNIT	
27	3-948-809-31	SCREW (M2X12)	
28	3-724-511-01	SHOE, ACCESSORY	
29	X-3941-951-1	CABINET (UPPER) ASSY	
30	X-3941-949-1	HOLDER ASSY, MICROPHONE	
31	A-7063-475-A	MA-131P BOARD, COMPLETE	
32	1-223-224-11	RING, MF (WITH TACT SWITCH)	
33	1-693-017-11	REMOTE COMMANDER (CAM CODER) (RMT-509)	
34	3-947-500-01	LID, BATTERY CASE	
J051	1-566-850-31	CONNECTOR, (S) TERMINAL 4P	
LI101	1-550-104-11	HOLDER, BATTERY	
W053	1-696-803-11	CABLE, FLAT (FFC-72)	
W651	1-696-802-11	CABLE, FLAT (FFC-73)	
W701	1-645-161-11	FP-476 FLEXIBLE BOARD	
W702	1-645-164-11	FP-553 FLEXIBLE BOARD	
W703	1-645-163-11	FP-552 FLEXIBLE BOARD	
W802	1-645-162-11	FP-162 FLEXIBLE BOARD	

5-2. CABINET (R), EVF ASSEMBLIES



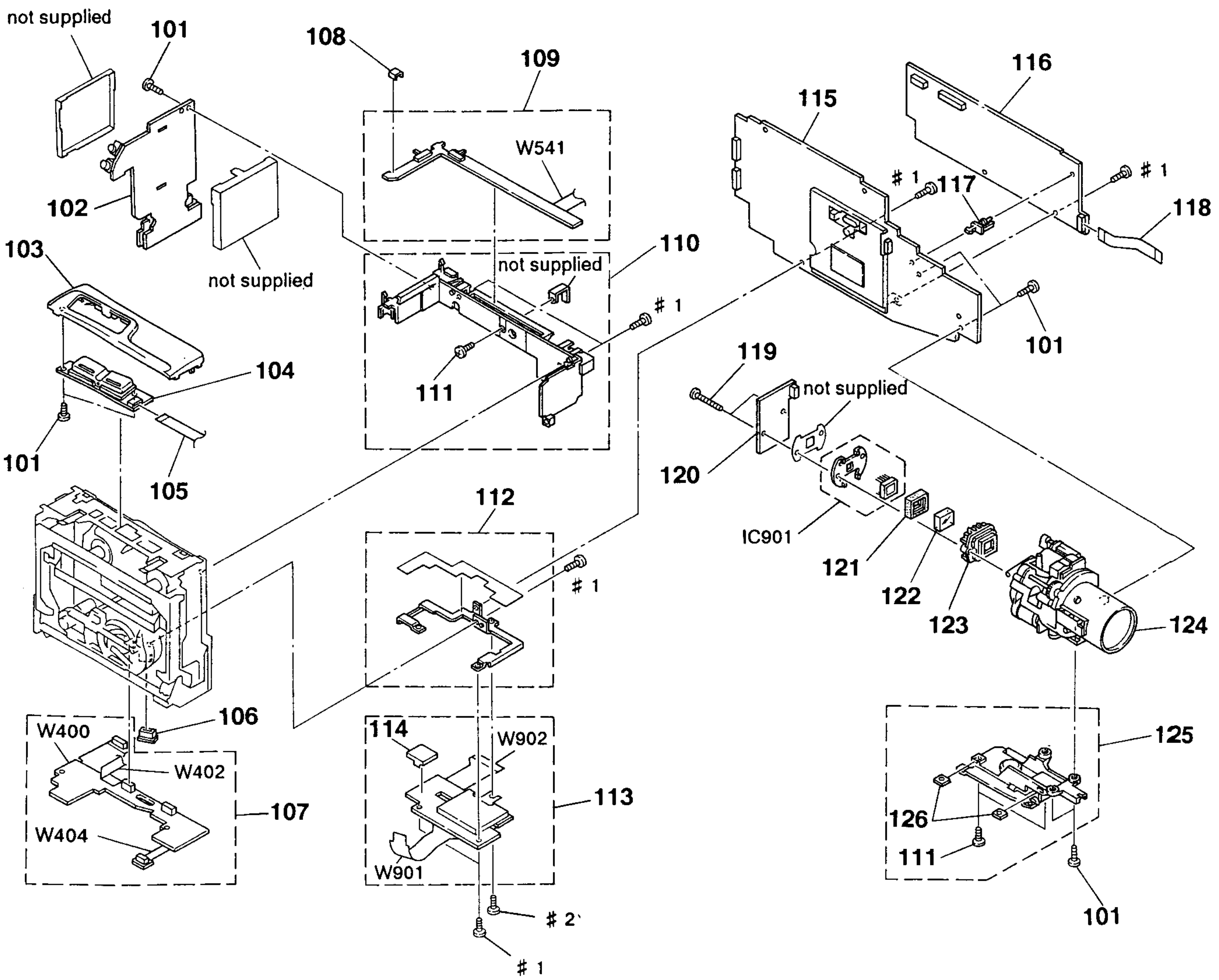


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
51	3-740-546-51	SCREW (M2X9)	
52	1-466-858-11	SWITCH BLOCK, CONTROL	
53	3-713-790-01	SCREW (M2X5), TAPPING, P3	
∗ 54	3-952-259-01	LABEL, MODEL NUMBER (AE)(AEP)	
∗ 54	3-953-623-01	LABEL, MODEL NUMBER (UK) (UK, E, Australian)	
∗ 55	3-704-235-01	LABEL, CAUTION (UK)	
56	3-719-381-01	SCREW (M2X4)	
57	X-3941-954-1	CABINET (R) ASSY (E, Australian)	
57	X-3942-583-1	CABINET (R) ASSY (AEP, UK)	
58	3-951-015-01	PLATE, LOCK, TILT	
59	3-951-014-01	SPRING, LEAF, TILT	
60	3-946-253-01	RING, TILT	
61	3-946-252-01	SLEEVE, EVF	
62	X-3942-582-1	BASE ASSY, SWITCH	
63	A-7081-897-A	HOLDER BLOCK ASSY, FINDER	
64	3-946-212-01	EYE CUP	

Ref. No.	Part No.	Description	Remark
65	3-713-790-31	SCREW (M2X8), TAPPING, P3	
66	X-3941-318-1	CABINET (L) ASSY, EVF	
67	3-946-202-01	JOINT, EVF	
68	A-7063-129-A	VF-44P BOARD, COMPLETE	
69	A-7081-905-A	LENS ASSY, VF	
70	3-946-203-01	HOLDER, CRT (TYPE A)	
71	3-946-205-01	PACKING, CRT (TYPE A)	
72	3-946-204-01	COVER, CRT (TYPE A)	
⚠73	1-451-310-21	DEFLECTION YOKE (B/W) (TYPE A)	
74	X-3941-319-1	CABINET (R) ASSY, EVF (TYPE A)	
75	A-7063-423-A	VF-51P BOARD, COMPLETE	
76	X-3942-123-1	CABINET (R) ASSY, EVF (TYPE B)	
⚠V901	1-452-565-11	CRT ASSY (TYPE B)	
⚠V901	1-546-091-11	CATHODE-RAY TUBE, B/W (TYPE A)	
⚠W502	1-526-978-51	SOCKET ASSY, CRT (TYPE I)	
⚠W502	1-540-019-51	SOCKET ASSY, CRT (TYPE II)	

5-3. MAIN BOARD ASSEMBLY


not supplied
101
108
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W541
102
# 1
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# 1
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not supplied
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104
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not supplied
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120
112
IC901
121
# 1
122
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124
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W400
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W902
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W402
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W404
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W901
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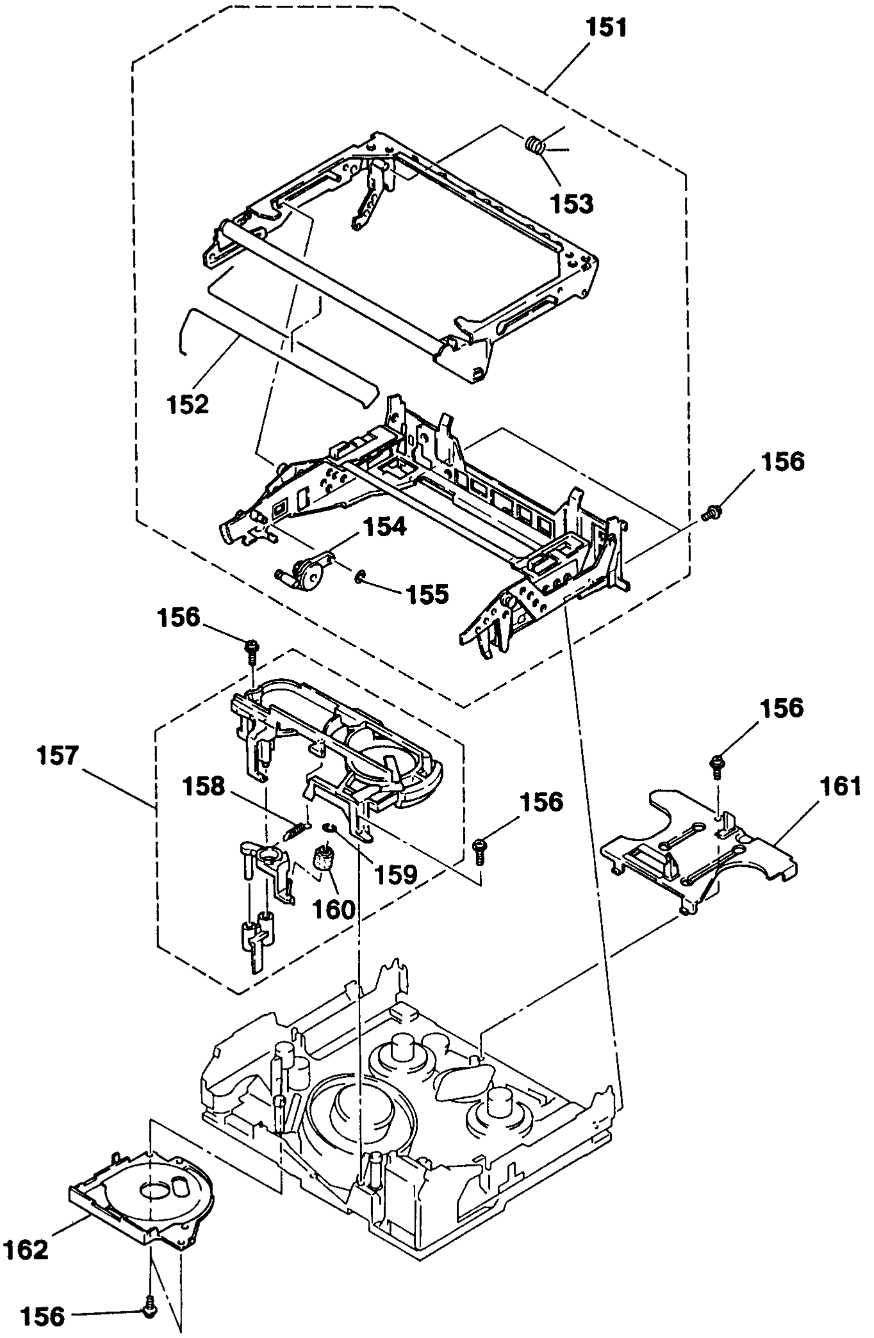
# 2
# 1

Ref. No.	Part No.	Description	Remark
101	3-713-790-01	SCREW (M2X5), TAPPING, P3	
102	A-7063-471-A	PS-298P BOARD, COMPLETE	
103	X-3941-945-1	LID ASSY, LS	
104	1-692-025-11	SWITCH, PUSH (ZOOM SWITCH)	
105	1-645-167-11	FP-606 FLEXIBLE BOARD	
106	1-691-471-11	CONNECTOR, TRANSLATION 11P	
107	A-7063-474-A	SL-24P BOARD, COMPLETE	
108	3-949-218-01	BLIND, TALLY	
109	A-7063-473-A	VK-23P BOARD, COMPLETE (AEP, UK)	
109	A-7063-585-A	VK-23P BOARD, COMPLETE (E, Australian)	
110	X-3941-944-1	HOLDER ASSY, VTR	
111	3-719-381-01	SCREW (M2X4)	
* 112	X-3941-946-1	HOLDER ASSY, RP	
113	A-7063-472-A	RP-138P BOARD, COMPLETE	
114	3-949-198-01	CASE, SHIELD, FE	
115	A-7063-469-A	CS-33P BOARD, COMPLETE	
116	A-7063-470-A	VI-113P BOARD, COMPLETE	
* 117	3-949-223-01	SUPPORT, CS PC BOARD	
118	1-645-166-11	FP-607 FLEXIBLE BOARD	
119	3-947-268-01	SCREW (B TIGHT) (2), TAPPING	
120	A-7063-468-A	CD-78P BOARD, COMPLETE	
121	3-946-857-01	RUBBER (S), SEAL	
122	1-547-529-21	FILTER BLOCK, OPTICAL	
123	3-946-856-01	ADAPTOR (H), CCD FITTING	
124	1-547-541-11	LENS, ZOOM (VCL-6110WB) (TYPE I)	
124	1-547-594-11	LENS, ZOOM (VCL-6110WD) (TYPE II)	
125	X-3941-952-1	HOLDER ASSY, LENS	
126	3-718-233-01	NUT, PLATE	
IC901	A-7030-371-A	CCD BLOCK ASSY(ICX059 AK-2)(CCD IMAGER)	
W400	1-645-159-11	FP-477 FLEXIBLE BOARD	
W402	1-696-801-11	CABLE, FLAT (FFC-50)	
W404	1-642-186-11	FP-437 FLEXIBLE BOARD	
W541	1-646-282-11	FP-571 FLEXIBLE BOARD	
W901	1-645-160-11	FP-479 FLEXIBLE BOARD	
W902	1-645-165-11	FP-554 FLEXIBLE BOARD	

5-4. CASSETTE COMPARTMENT ASSEMBLY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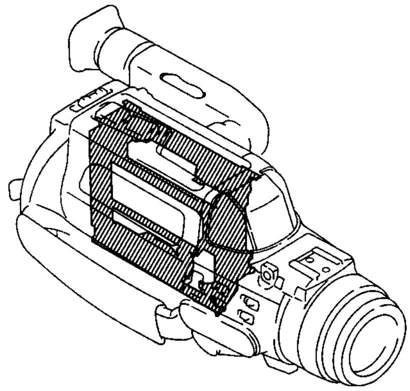
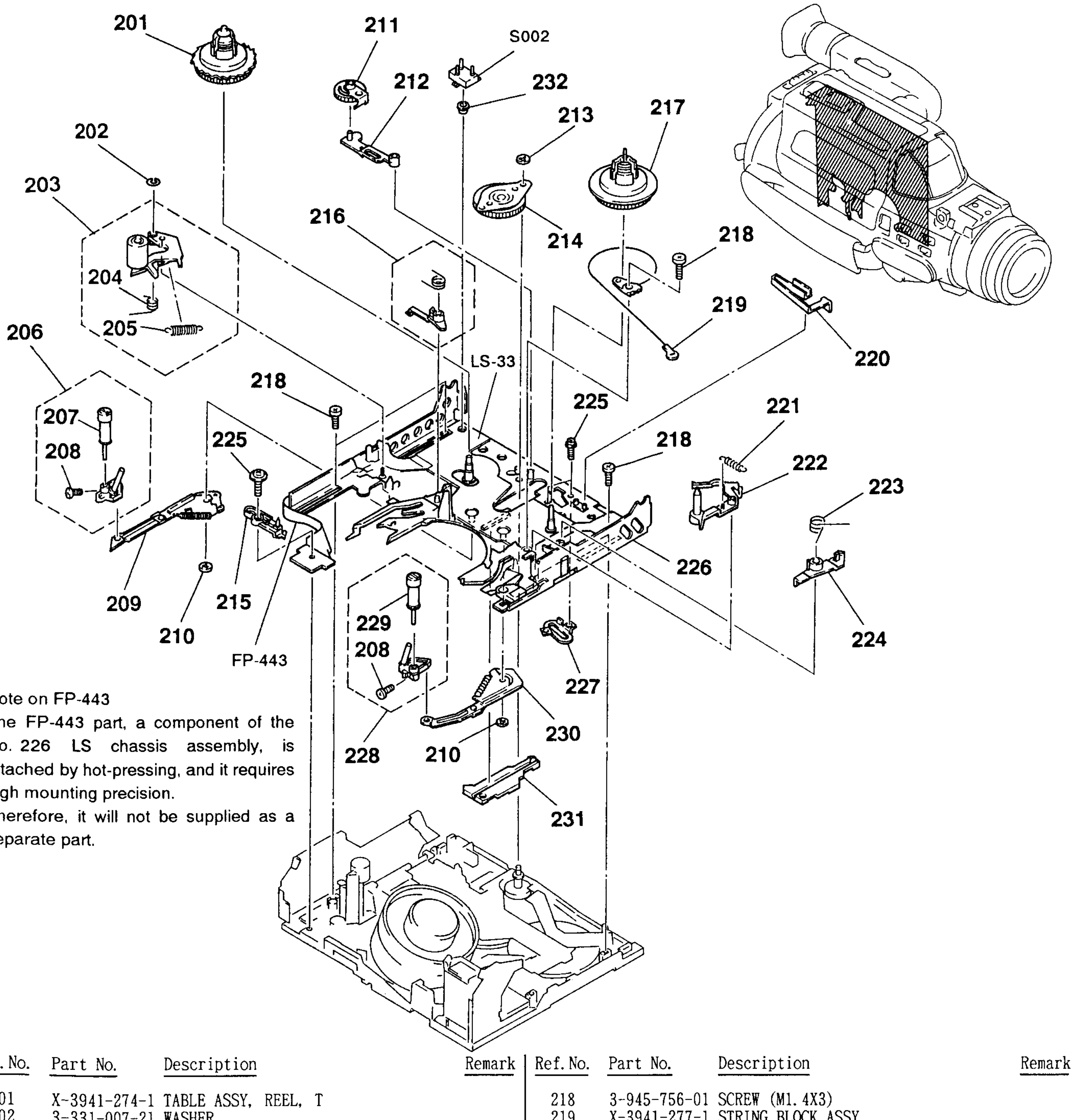


Ref. No.	Part No.	Description	Remark
151	A-7040-312-H	CASSETTE COMPARTMENT BLOCKASSY	
152	3-945-773-01	BAR, TORSION	
153	3-945-771-01	SPRING, TORSION	
154	X-3941-287-2	DAMPER ASSY	
155	3-315-384-31	WASHER, STOPPER	
156	3-947-503-01	SCREW (M1.4X2.5)	
157	A-7040-309-A	PROTECT (BASE) BLOCK ASSY	
158	3-945-760-01	SPRING, TENSION	
159	3-321-393-01	WASHER, STOPPER	
160	X-3166-813-1	ROLLER ASSY, HC	
161	X-3941-280-1	RETAINER ASSY, GOOSENECK	
162	3-945-733-01	COVER, CAPSTAN	

5-5. LS CHASSIS ASSEMBLY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LS-33
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FP-443
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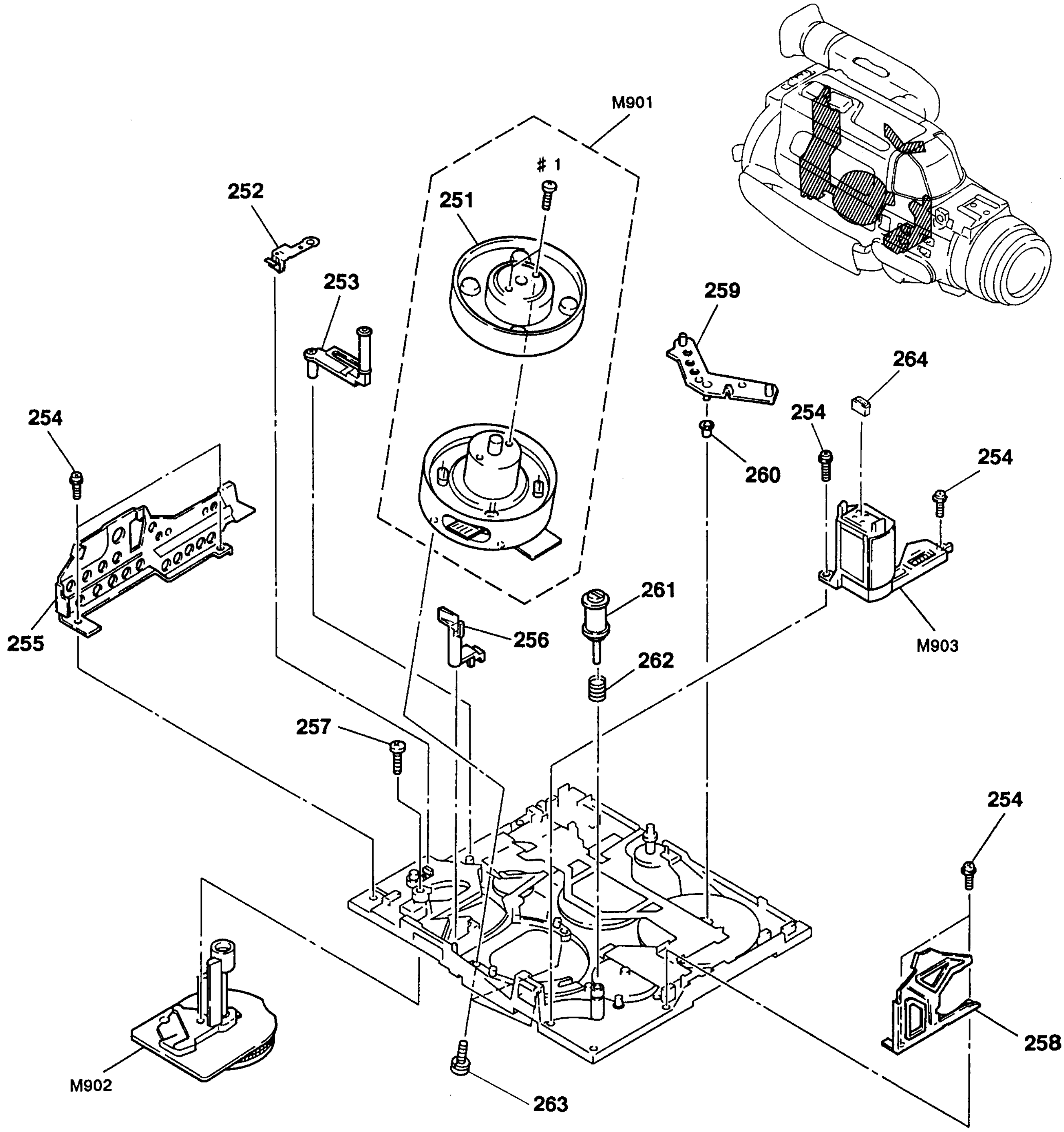
Note on FP-443
The FP-443 part, a component of the No. 226 LS chassis assembly, is attached by hot-pressing, and it requires high mounting precision.
Therefore, it will not be supplied as a separate part.

Ref. No.	Part No.	Description	Remark
201	X-3941-274-1	TABLE ASSY, REEL, T	
202	3-331-007-21	WASHER	
203	X-3941-271-5	ARM ASSY, PINCH	
204	3-945-743-01	SPRING, TORSION	
205	3-945-783-03	SPRING, TENSION	
206	A-7040-322-A	GUIDE (BASE) (T) BLOCK ASSY (2)	
207	X-3941-756-1	ROLLER ASSY (2), TG6	
208	3-947-504-01	SCREW (M1.2X2)	
209	X-3941-267-1	ARM (T) ASSY, GUIDE	
210	3-669-465-00	WASHER (1.5), STOPPER	
211	X-3941-273-1	SOFT ASSY, T	
212	3-945-753-01	ARM, T SOFT	
213	3-726-829-01	WASHER, STOPPER	
214	X-3941-275-5	GEAR ASSY, GOOSENECK	
215	3-947-644-01	RETAINER, TG5 (BASE)	
216	A-7040-321-A	CLAW BLCK ASSY, T HARD	
217	X-3941-275-6	TABLE ASSY, REEL, S	
218	3-945-756-01	SCREW (M1.4X3)	
219	X-3941-277-1	STRING BLOCK ASSY	
220	3-945-801-01	BRAKE, S SOFT	
221	3-948-810-01	SPRING, TENSION	
222	X-3941-276-1	TG1 ASSY	
223	3-945-752-01	SPRING, TORSION	
224	3-945-799-01	BRAKE, S HARD	
225	3-947-503-01	SCREW (M1.4X2.5)	
226	X-3941-265-1	CHASSIS ASSY, LS	
227	3-945-784-01	PLATE, CAM, LS	
228	A-7040-323-A	GUIDE (BASE) (S) BLOCK ASSY (2)	
229	X-3941-755-1	ROLLER ASSY (2), TG3	
230	X-3941-266-1	ARM (S) ASSY, GUIDE	
231	3-945-837-01	SLIDER, GL	
232	3-949-881-01	SLEEVE	
S002	1-572-987-11	SWITCH, PUSH (3KEY) (REC PROOF, ME/MP, MP/MP-HG)	

5-6. MECHANISM CHASSIS ASSEMBLY (1)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M903
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M902
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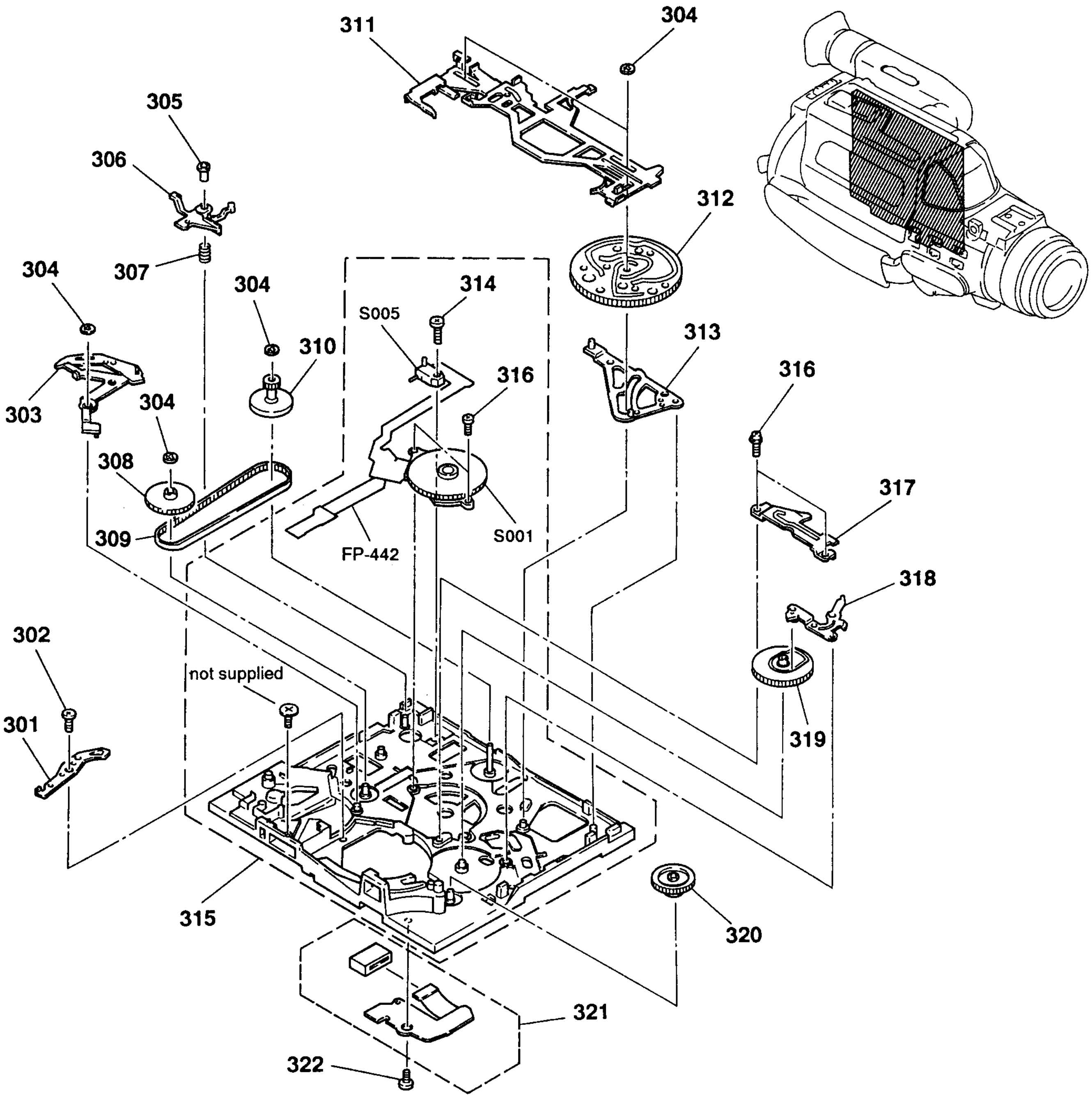
Ref. No.	Part No.	Description	Remark
251	A-7049-607-A	DRUM ASSY, UPPER (DGR-94-R)	
252	3-945-822-01	SPRING, LEAF, TG7 ARM	
253	A-7040-305-A	ARM BLOCK ASSY, TG7	
254	3-947-503-01	SCREW (M1.4X2.5)	
255	X-3941-255-1	PLATE (T) ASSY, SIDE	
256	3-945-735-01	ARM, HC CONVERSION	
257	3-713-786-71	SCREW (M2X5)	
258	3-945-691-01	PLATE (S), SIDE	
259	3-945-701-01	ARM, LS	
260	3-945-702-01	ROLLER, LS	
261	X-3942-193-1	ROLLER ASSY (2), TG2	
262	3-945-774-01	SPRING, COMPRESSION	
263	3-686-493-01	SCREW (M2X5), P1	
264	1-568-323-11	CONNECTOR, BOARD TO BOARD 4P	
M901	A-7048-666-A	DRUM ASSY (DGH-94A-R)	
M902	8-835-477-01	MOTOR, DC SCE-0101A (CAPSTAN)	
M903	A-7040-304-A	MOTOR BLOCK ASSY, LM (LOADING)	

5-7. MECHANISM CHASSIS ASSEMBLY (2)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S005
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FP-442
S001
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not supplied
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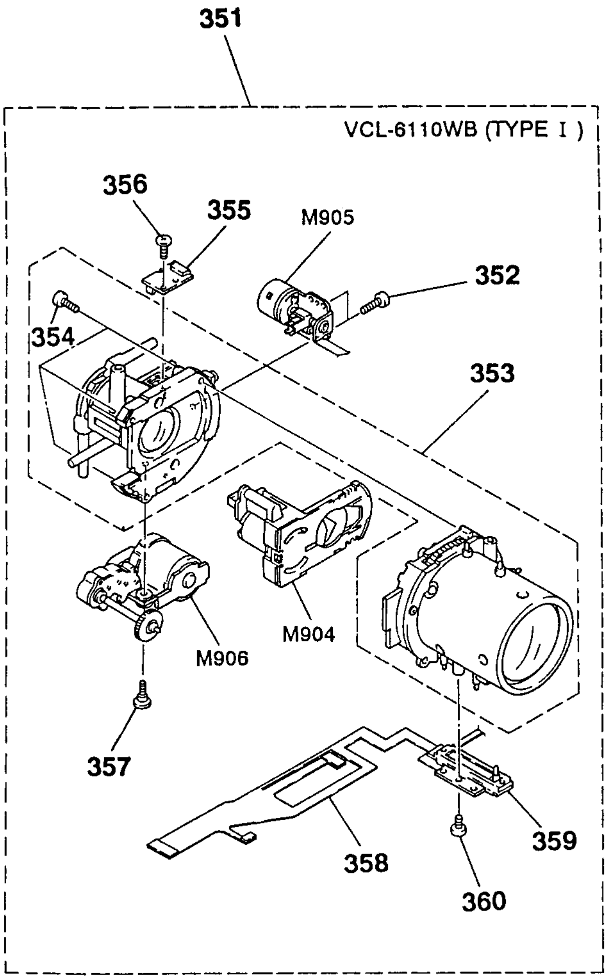
Ref. No.	Part No.	Description	Remark
301	3-945-734-01	ARM, HC DRIVING	
302	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD	
303	X-3941-259-1	ARM ASSY, PINCH PRESS	
304	3-726-829-01	WASHER, STOPPER	
305	3-945-730-01	SLEEVE, EJECT	
306	3-945-706-01	LEVER, EJECT	
307	3-945-729-01	SPRING, COMPRESSION	
308	X-3941-256-1	GEAR ASSY, CHANGE	
309	3-944-539-01	BELT, RELAY	
310	3-945-695-01	PULLEY, RELAY	
311	X-3941-260-1	SLIDER ASSY, M	
312	3-945-696-01	CAM	
313	X-3941-258-1	ARM ASSY, GL	
314	3-713-786-71	SCREW (M2X5)	
315	A-7040-303-A	CHASSIS ASSY, MECHANICAL	
316	3-947-503-01	SCREW (M1.4X2.5)	
317	3-945-722-01	RETAINER, GEAR	
318	X-3941-257-1	ARM ASSY, FF	
319	3-945-697-01	GEAR (B), L	
320	3-945-700-01	GEAR (A), L	
321	A-7040-311-A	FP-444 ASSY	
322	3-945-756-01	SCREW (M1.4X3)	
S001	1-572-986-11	SWITCH, ROTARY (ENCODER)	
S005	1-570-771-21	SWITCH (C DOWN)	

5-8. ZOOM LENS ASSEMBLY (VCL-6110WB), (VCL-6110WD)

(Distinguishing TYPE I (VCL-6110WB) from TYPE II (VCL-6110WD) The sensor board attached to the flexible board (Ref. No. 358 or No. 362) or TYPE I (VCL-6110WB) can be removed with a connector (Ref. No. 355) while that of TYPE II (VCL-6110WD) cannot.)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VCL-6110WB (TYPE I)
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M905
352
354
353
M904
M906
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358
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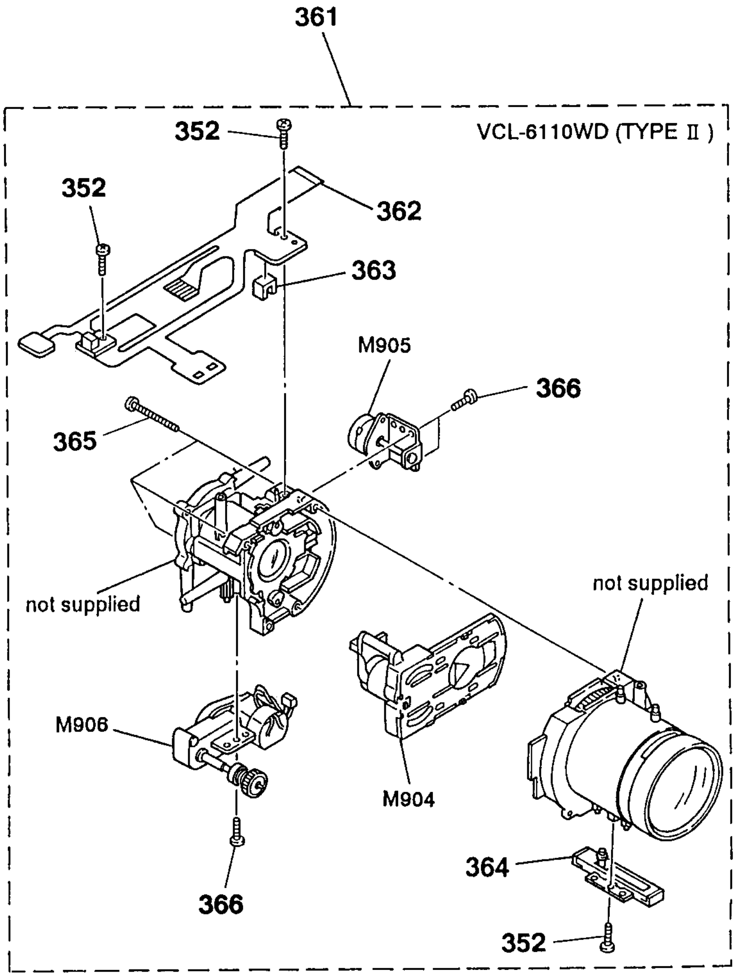
360


361
352
VCL-6110WD (TYPE II)
352
362
363
M905
366
365
not supplied
not supplied
M906
M904
364
366
352

Ref. No.	Part No.	Description	Remark
351	1-547-541-11	LENS, ZOOM (VCL-6110WB)(TYPE I)	
352	3-707-665-01	BT3P1, 7X4C	
353	3-708-462-01	LENS ASSY (B)(TYPE I)	
354	3-708-568-01	SCREW (1), DOCKING (TYPE I)	
355	3-708-331-01	SENSOR ASSY, RESET (TYPE I)	
356	3-708-570-01	SCREW, FITTING, FI BOARD (TYPE I)	
357	3-708-569-01	SCREW (2), DOCKING (TYPE I)	
358	3-708-395-01	CHASSIS, RELAY FLEXIBLE (TYPE I)	
359	3-708-393-01	POTENTIAL, ZOOM (TYPE I)	
360	3-708-571-01	SCREW, FITTING, ZOOM POTENTIAL (TYPE I)	
361	1-547-594-21	LENS, ZOOM (VCL-6110WD)(TYPE II)	
362	3-708-488-01	P.C.B ASSY, MAIN (TYPE II)	
363	3-708-490-01	PHOTO INTERRUPTER (FOCUS END)(TYPE II)	
364	3-708-485-01	ENCODER, ZOOM (TYPE II)	
365	3-708-566-01	BT3P1, 7X10C (TYPE II)	
366	3-708-567-01	BT3P1, 7X5C (TYPE II)	
M904	3-708-385-01	IRIS ASSY (TYPE I)	
M904	3-708-486-01	METER ASSY, IG (IRIS)(TYPE II)	
M905	3-708-389-01	MOTOR ASSY, FOCUS (TYPE I)	
M905	3-708-489-01	MOTOR ASSY, AF (FOCUS)(TYPE II)	
M906	3-708-387-01	MOTOR ASSY, ZOOM (TYPE I)	
M906	3-708-487-01	MOTOR ASSY, PZ (ZOOM)(TYPE II)	

SECTION 6
ELECTRICAL PARTS LIST

CD-78P **CS-33P**

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Hardware (# mark) list is given in the last of this parts list.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref.No.	Part No.	Description	Remark
	A-7063-468-A	CD-78P BOARD, COMPLETE	
		**********************	
		(Ref. No 3,000 Series)	
		< CAPACITOR >	
C901	1-135-214-21	TANTAL. CHIP 4.7uF 20% 20V	
C902	1-128-013-11	ELECT CHIP 1uF 20% 50V	
C903	1-128-008-11	ELECT CHIP 3.3uF 20% 35V	
C904	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C905	1-162-637-11	CERAMIC CHIP 0.47uF 16V	
C906	1-126-607-11	ELECT CHIP 47uF 20% 4V	
C907	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C908	1-128-007-11	ELECT CHIP 2.2uF 20% 35V	
C909	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C910	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C911	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C912	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
		< CONNECTOR >	
CN901	1-573-372-21	CONNECTOR, BOARD TO BOARD 18P	
CN902	1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P	
		< DIODE >	
D901	8-719-820-05	DIODE 1SS181	
D903	8-719-820-05	DIODE 1SS181	
D904	8-719-800-76	DIODE 1SS226	
		< COIL >	
L901	1-412-032-11	INDUCTOR CHIP 100uH	
		< TRANSISTOR >	
Q901	8-729-010-75	TRANSISTOR MSC4116-BC	
Q901	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q902	8-729-402-13	TRANSISTOR XN1501	
Q903	8-729-232-86	TRANSISTOR 2SK1875-BL/V	
		< RESISTOR >	
R901	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R902	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R903	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R904	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R905	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R906	1-216-820-11	METAL CHIP 820 5% 1/16W	
R907	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R908	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R909	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R910	1-216-809-11	METAL CHIP 100 5% 1/16W	
R911	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R914	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R915	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R916	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R917	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R918	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
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	A-7063-469-A	CS-33P BOARD, COMPLETE	
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		(Ref. No 5,000 Series)	
		< CAPACITOR >	
C401	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C402	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C403	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C404	1-164-634-11	CERAMIC CHIP 1uF 16V	
C405	1-162-952-11	CERAMIC CHIP 82PF 5% 50V	
C406	1-164-634-11	CERAMIC CHIP 1uF 16V	
C407	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C408	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C409	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C411	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C414	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C415	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C416	1-126-207-11	ELECT CHIP 33uF 20% 4V	
C417	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C418	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C419	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C420	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C422	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C423	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C424	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C425	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C426	1-164-634-11	CERAMIC CHIP 1uF 16V	
C427	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C429	1-162-949-11	CERAMIC CHIP 47PF 5% 50V	
C430	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
C432	1-164-634-11	CERAMIC CHIP 1uF 16V	

Ref. No.	Part No.	Description			Remark
C433	1-126-607-11	ELECT CHIP	47uF	20%	4V
C434	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C435	1-128-003-11	ELECT CHIP	22uF	20%	4V
C436	1-128-003-11	ELECT CHIP	22uF	20%	4V
C437	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C438	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C439	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C440	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C441	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C442	1-164-634-11	CERAMIC CHIP	1uF		16V
C443	1-164-634-11	CERAMIC CHIP	1uF		16V
C444	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C445	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C448	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C449	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C450	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C451	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C452	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C454	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C455	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C456	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C457	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C458	1-164-634-11	CERAMIC CHIP	1uF		16V
C459	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C461	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C462	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C464	1-164-634-11	CERAMIC CHIP	1uF		16V
C465	1-126-607-11	ELECT CHIP	47uF	20%	4V
C466	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C467	1-128-003-11	ELECT CHIP	22uF	20%	4V
C468	1-128-003-11	ELECT CHIP	22uF	20%	4V
C469	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C470	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C471	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C472	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C473	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C475	1-164-634-11	CERAMIC CHIP	1uF		16V
C476	1-164-634-11	CERAMIC CHIP	1uF		16V
C477	1-164-634-11	CERAMIC CHIP	1uF		16V
C478	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C479	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C480	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C482	1-164-634-11	CERAMIC CHIP	1uF		16V
C483	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C484	1-162-971-11	CERAMIC CHIP	0.001uF		50V
C485	1-128-003-11	ELECT CHIP	22uF	20%	4V
C486	1-128-003-11	ELECT CHIP	22uF	20%	4V
C488	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C489	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C490	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C491	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C492	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C493	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C494	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C496	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C497	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C501	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C502	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C503	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C504	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C505	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C506	1-162-971-11	CERAMIC CHIP	0.001uF		50V
C507	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C508	1-126-217-11	ELECT CHIP	15uF	20%	10V
C509	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C510	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C511	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C512	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C513	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C514	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C515	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C516	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C517	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C518	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C519	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C520	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C521	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C522	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C523	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C524	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C525	1-128-004-11	ELECT CHIP	10uF	20%	16V
C526	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C527	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C528	1-126-217-11	ELECT CHIP	15uF	20%	10V
C529	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C530	1-164-107-11	CERAMIC CHIP	0.15uF	10%	16V
C531	1-164-107-11	CERAMIC CHIP	0.15uF	10%	16V
C533	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C534	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C535	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C536	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C537	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C538	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C539	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C540	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C541	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C542	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C543	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C544	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C545	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref.No.	Part No.	Description			Remark
C546	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C547	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C548	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C549	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C550	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C551	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C552	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C553	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C554	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C555	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C556	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C557	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C558	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C559	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C560	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C561	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C562	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C563	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C564	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C565	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C566	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C567	1-162-905-11	CERAMIC CHIP	1PF	0.25PF	50V
C568	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C569	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C570	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C571	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C572	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C573	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C574	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C575	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C576	1-135-217-21	TANTALUM CHIP	15uF	20%	6.3V
C577	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C578	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C579	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C580	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C581	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C582	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C583	1-128-004-11	ELECT CHIP	10uF	20%	16V
C584	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C585	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C594	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C701	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C702	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C703	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C705	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C706	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C707	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C708	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C709	1-164-346-11	CERAMIC CHIP	1uF		16V
C710	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C711	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C712	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C713	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C714	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C715	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C716	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C717	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C718	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C719	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C721	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C722	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C723	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C724	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C725	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C726	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C727	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C728	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C729	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C730	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C731	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C732	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C733	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C734	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C735	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C736	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C737	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C738	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C739	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C741	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C743	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C744	1-162-638-11	CERAMIC CHIP	1uF		16V
C745	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C746	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C747	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C748	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C749	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C750	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C751	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C753	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C754	1-162-943-11	CERAMIC CHIP	15PF	5%	50V
C756	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C757	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C758	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C760	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C801	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C802	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C803	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C804	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C805	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C806	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V

CS-33P

Ref. No.	Part No.	Description			Remark
C807	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C808	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C809	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C810	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C811	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C813	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C814	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C815	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C816	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C817	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C818	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C819	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C820	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C821	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C823	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C826	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C827	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C828	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C831	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C832	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C833	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C834	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C835	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C836	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C837	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C838	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C839	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C840	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C851	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C852	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C853	1-162-638-11	CERAMIC CHIP	1uF		16V
C854	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C855	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C856	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C857	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C858	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C859	1-128-004-11	ELECT CHIP	10uF	20%	16V
C861	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C862	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C863	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C864	1-162-638-11	CERAMIC CHIP	1uF		16V
C865	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C866	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C868	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C869	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C870	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C872	1-162-638-11	CERAMIC CHIP	1uF		16V
C875	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C981	1-128-004-11	ELECT CHIP	10uF	20%	16V
C982	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remark
C983	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C984	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C985	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C986	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C987	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5000	1-164-156-11	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

	CN401	1-691-487-21	CONNECTOR, FFC/FPC 8P
	CN501	1-691-498-11	CONNECTOR, FFC/FPC 19P
	CN502	1-691-928-11	CONNECTOR, BOARD TO BOARD 32P
	CN503	1-580-789-21	PIN, CONNECTOR (SMD) 6P
	CN504	1-691-477-21	CONNECTOR, BOARD TO BOARD 28P
	CN505	1-691-477-21	CONNECTOR, BOARD TO BOARD 28P
	CN506	1-691-477-21	CONNECTOR, BOARD TO BOARD 28P
	CN507	1-691-479-21	CONNECTOR, BOARD TO BOARD 40P
*	CN508	1-580-756-21	PIN, CONNECTOR 7P
	CN509	1-573-921-11	CONNECTOR, FFC/FPC (ZIF) 12P
	CN510	1-691-489-11	CONNECTOR, FFC/FPC 10P
	CN511	1-573-935-11	CONNECTOR, FFC/FPC (ZIF) 26P
	CN512	1-691-521-11	CONNECTOR, BOARD TO BOARD 40P
	CN701	1-573-372-21	CONNECTOR, BOARD TO BOARD 18P
	CN801	1-691-475-21	CONNECTOR, BOARD TO BOARD 18P
	CN851	1-573-361-11	CONNECTOR, FFC/FPC 21P
	CN852	1-566-540-11	CONNECTOR, FPC (NON ZIF) 8P

< TRIMMER >

CT801	1-141-356-11	CAP, ADJ

< DIODE >

D401	8-719-404-46	DIODE	MA110
D402	8-719-941-86	DIODE	DAN202U
D403	8-719-404-46	DIODE	MA110
D501	8-719-421-27	DIODE	MA728
D502	8-719-404-46	DIODE	MA110
D503	8-719-404-46	DIODE	MA110
D504	8-719-941-86	DIODE	DAN202U
D505	8-719-404-46	DIODE	MA110
D506	8-719-404-46	DIODE	MA110
D507	8-719-404-46	DIODE	MA110
D508	8-719-404-46	DIODE	MA110
D511	8-719-977-34	DIODE	DTZ12
D513	8-719-977-34	DIODE	DTZ12
D514	8-719-977-34	DIODE	DTZ12
D515	8-719-977-34	DIODE	DTZ12
D516	8-719-977-34	DIODE	DTZ12
D517	8-719-977-34	DIODE	DTZ12
D518	8-719-977-34	DIODE	DTZ12
D519	8-719-977-34	DIODE	DTZ12
D520	8-719-977-34	DIODE	DTZ12

Ref. No.	Part No.	Description	Remark
D521	8-719-977-34	DIODE DTZ12	
D522	8-719-977-34	DIODE DTZ12	
D523	8-719-977-34	DIODE DTZ12	
D524	8-719-977-34	DIODE DTZ12	
D529	8-719-404-46	DIODE MA110	
D530	8-719-404-46	DIODE MA110	
D531	8-719-404-46	DIODE MA110	
D532	8-719-404-46	DIODE MA110	
D5000	8-719-404-46	DIODE MA110	
D5001	8-719-404-46	DIODE MA110	
D5002	8-719-404-46	DIODE MA110	
D5003	8-719-404-46	DIODE MA110	
		< FILTER >	
FL401	1-236-837-21	FILTER, BAND PASS 1.5 MHz	
FL402	1-236-838-21	FILTER, BAND PASS 1.7 MHz	
FL701	1-406-452-11	COIL, OSC	
		< IC >	
IC401	8-759-823-21	IC CXA1536QQ	
IC402	8-759-823-19	IC CXA1488RR	
IC403	8-759-055-82	IC M62353GP	
IC404	8-759-823-19	IC CXA1488RR	
IC501	8-759-058-96	IC TB1206F	
IC502	8-759-999-02	IC TL1596CDB	
IC503	8-752-842-05	IC CXP80624A-016Q	
IC505	8-759-990-55	IC CXA8006M	
IC506	8-759-167-61	IC uPD75316GF-355-3B9	
IC507	8-759-511-22	IC CXA1448N	
IC508	8-759-512-69	IC S-81350HG-KD	
IC509	8-759-145-63	IC uPD7564G-540	
IC510	8-759-039-01	IC MPC1720M	
IC511	8-759-073-67	IC BR9021AF-E2	
IC701	8-759-031-58	IC SC7SU04F	
IC702	8-759-635-27	IC M62352GP	
IC703	8-759-094-47	IC uPD6456GS-630	
IC704	8-752-358-10	IC CXD2101BR	
IC705	8-759-063-18	IC 27C512-RCP-V1.0	
IC706	8-752-355-56	IC CXD2104BN	
IC707	8-752-347-93	IC CXD2100AQ	
IC709	8-752-836-44	IC CXP80624-419Q	
IC710	8-759-099-89	IC MS6264BLL-15VC-ER	
IC711	8-759-518-81	IC CXD2112R	
IC712	8-759-044-78	IC AK6420F	
IC801	8-752-341-09	IC CXD1265R	
IC802	8-752-056-39	IC CXA1507BR	
IC803	8-752-053-26	IC CXA1399Q	
IC804	8-752-347-34	IC CXD1250AN	
IC805	8-752-054-61	IC CXA1390AR	
IC851	8-759-701-24	IC NJM3414M	
IC852	8-759-998-96	IC LM324D	
IC853	8-759-038-81	IC MPC1724M	
IC854	8-759-823-51	IC LB1830M	
IC855	8-759-998-98	IC LM358D	
		< COIL >	
L501	1-412-029-11	INDUCTOR CHIP 10uH	
L502	1-412-029-11	INDUCTOR CHIP 10uH	
L503	1-412-028-11	INDUCTOR CHIP 4.7uH	
L504	1-412-031-11	INDUCTOR CHIP 47uH	
L506	1-412-029-11	INDUCTOR CHIP 10uH	
L507	1-410-192-51	INDUCTOR CHIP 1uH	
L508	1-410-192-51	INDUCTOR CHIP 1uH	
L703	1-412-006-31	INDUCTOR CHIP 10uH	
L704	1-412-006-31	INDUCTOR CHIP 10uH	
L705	1-412-006-31	INDUCTOR CHIP 10uH	
L706	1-412-029-11	INDUCTOR CHIP 10uH	
L709	1-412-006-31	INDUCTOR CHIP 10uH	
L714	1-412-011-31	INDUCTOR CHIP 27uH	
L715	1-412-029-11	INDUCTOR CHIP 10uH	
L716	1-412-026-11	INDUCTOR CHIP 1uH	
L717	1-412-029-11	INDUCTOR CHIP 10uH	
L718	1-412-006-31	INDUCTOR CHIP 10uH	
L719	1-412-006-31	INDUCTOR CHIP 10uH	
L722	1-412-006-31	INDUCTOR CHIP 10uH	
L723	1-410-392-11	INDUCTOR CHIP 82uH	
L730	1-412-026-11	INDUCTOR CHIP 1uH	
L731	1-412-026-11	INDUCTOR CHIP 1uH	
L733	1-412-979-21	INDUCTOR 1uH	
L734	1-412-979-21	INDUCTOR 1uH	
L801	1-412-029-11	INDUCTOR CHIP 10uH	
L802	1-412-006-31	INDUCTOR CHIP 10uH	
L803	1-412-029-11	INDUCTOR CHIP 10uH	
L804	1-412-029-11	INDUCTOR CHIP 10uH	
L851	1-412-029-11	INDUCTOR CHIP 10uH	
L852	1-410-993-11	INDUCTOR CHIP 1uH	
L853	1-412-029-11	INDUCTOR CHIP 10uH	
L981	1-410-381-11	INDUCTOR CHIP 10uH	
L5001	1-410-192-51	INDUCTOR CHIP 1uH	
L5002	1-410-192-51	INDUCTOR CHIP 1uH	
L5004	1-412-979-21	INDUCTOR 1uH	
L5005	1-412-026-11	INDUCTOR CHIP 1uH	
L5006	1-410-993-11	INDUCTOR CHIP 1uH	
		< IC LINK >	
⚠PS501	1-576-123-21	RINK, IC	
		< TRANSISTOR >	
Q401	8-729-402-42	TRANSISTOR UN5213	
Q402	8-729-402-42	TRANSISTOR UN5213	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description				Remark
Q403	8-729-010-60	TRANSISTOR	MSA1586-BC			
Q405	8-729-420-50	TRANSISTOR	UN5215			
Q406	8-729-420-50	TRANSISTOR	UN5215			
Q410	8-729-420-50	TRANSISTOR	UN5215			
Q411	8-729-420-50	TRANSISTOR	UN5215			
Q412	8-729-907-39	TRANSISTOR	IMD2			
Q413	8-729-216-22	TRANSISTOR	2SA1162			
Q414	8-729-402-42	TRANSISTOR	UN5213			
Q415	8-729-402-81	TRANSISTOR	XN4501			
Q416	8-729-402-81	TRANSISTOR	XN4501			
Q417	8-729-402-81	TRANSISTOR	XN4501			
Q418	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q421	8-729-403-35	TRANSISTOR	UN5113			
Q422	8-729-402-42	TRANSISTOR	UN5213			
Q423	8-729-109-44	TRANSISTOR	2SK94			
Q424	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q425	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q501	8-729-015-76	TRANSISTOR	UN5211-TX			
Q502	8-729-403-27	TRANSISTOR	XN4401			
Q507	8-729-403-35	TRANSISTOR	UN5113			
Q509	8-729-822-84	TRANSISTOR	2SB1202FAST			
Q510	8-729-402-81	TRANSISTOR	XN4501			
Q532	8-729-402-81	TRANSISTOR	XN4501			
Q701	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q702	8-729-402-84	TRANSISTOR	XN4601			
Q703	8-729-010-60	TRANSISTOR	MSA1586-BC			
Q704	8-729-010-60	TRANSISTOR	MSA1586-BC			
Q705	8-729-402-42	TRANSISTOR	UN5213			
Q706	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q707	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q708	8-729-015-74	TRANSISTOR	UN5111-TX			
Q709	8-729-402-45	TRANSISTOR	UN5212			
Q801	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q802	8-729-403-27	TRANSISTOR	XN4401			
Q851	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q853	8-729-403-27	TRANSISTOR	XN4401			
Q982	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q983	8-729-403-35	TRANSISTOR	UN5113			
Q984	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q986	8-729-402-42	TRANSISTOR	UN5213			
Q988	8-729-402-42	TRANSISTOR	UN5213			
		< RESISTOR >				
R401	1-216-864-11	METAL CHIP	0	5%	1/16W	
R402	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R403	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R404	1-216-802-11	METAL CHIP	27	0.50%	1/16W	
R406	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R407	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R408	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R409	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R410	1-216-864-11	METAL CHIP	0	5%	1/16W	
R412	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R413	1-216-817-11	METAL CHIP	470	5%	1/16W	
R414	1-216-810-11	METAL CHIP	120	5%	1/16W	
R415	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R416	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R418	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R419	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R420	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R421	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R423	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R424	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R425	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W	
R428	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R429	1-216-815-11	METAL CHIP	330	5%	1/16W	
R430	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R434	1-216-817-11	METAL CHIP	470	5%	1/16W	
R435	1-216-810-11	METAL CHIP	120	5%	1/16W	
R436	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R437	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R438	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R439	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R440	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R441	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R442	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R449	1-216-820-11	METAL CHIP	820	5%	1/16W	
R451	1-216-820-11	METAL CHIP	820	5%	1/16W	
R453	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R454	1-216-814-11	METAL CHIP	270	5%	1/16W	
R457	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R458	1-218-706-11	METAL CHIP	3.9K	0.50%	1/16W	
R459	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R460	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R461	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R462	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R463	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R464	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R465	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R466	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R467	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R468	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R469	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R470	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R471	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R472	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R473	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R474	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R475	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R476	1-216-821-11	METAL CHIP	1K	5%	1/16W	

Ref.No.	Part No.	Description	Remark
R477	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R478	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R479	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R484	1-216-864-11	METAL CHIP 0 5% 1/16W	
R485	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R491	1-216-808-11	METAL CHIP 82 5% 1/16W	
R492	1-216-809-11	METAL CHIP 100 5% 1/16W	
R493	1-216-809-11	METAL CHIP 100 5% 1/16W	
R494	1-216-810-11	METAL CHIP 120 5% 1/16W	
R495	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R496	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R497	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R501	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R502	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R503	1-216-861-11	METAL CHIP 2.2M 5% 1/16W	
R504	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R505	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R506	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R507	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R508	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R510	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R511	1-216-809-11	METAL CHIP 100 5% 1/16W	
R512	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R513	1-216-809-11	METAL CHIP 100 5% 1/16W	
R514	1-216-811-11	METAL CHIP 150 5% 1/16W	
R515	1-216-811-11	METAL CHIP 150 5% 1/16W	
R516	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R517	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R518	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R519	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R520	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R521	1-216-198-00	METAL CHIP 1K 5% 1/8W	
R522	1-216-864-11	METAL CHIP 0 5% 1/16W	
R523	1-216-864-11	METAL CHIP 0 5% 1/16W	
R525	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R526	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R527	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R528	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R529	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R530	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R531	1-216-864-11	METAL CHIP 0 5% 1/16W	
R532	1-216-809-11	METAL CHIP 100 5% 1/16W	
R533	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R534	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R535	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R538	1-216-864-11	METAL CHIP 0 5% 1/16W	
R539	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R540	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R541	1-216-198-00	METAL CHIP 1K 5% 1/8W	
R542	1-216-821-11	METAL CHIP 1K 5% 1/16W	

Ref.No.	Part No.	Description	Remark
R543	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R544	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R545	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R546	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R547	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R548	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R549	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R550	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R551	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R552	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R553	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R554	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R555	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R556	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R557	1-216-864-11	METAL CHIP 0 5% 1/16W	
R558	1-216-864-11	METAL CHIP 0 5% 1/16W	
R559	1-216-864-11	METAL CHIP 0 5% 1/16W	
R560	1-216-864-11	METAL CHIP 0 5% 1/16W	
R561	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R562	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R563	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R564	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R565	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R566	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R567	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R568	1-216-809-11	METAL CHIP 100 5% 1/16W	
R569	1-216-809-11	METAL CHIP 100 5% 1/16W	
R570	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R571	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R573	1-216-864-11	METAL CHIP 0 5% 1/16W	
R574	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R575	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R576	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R577	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R578	1-216-817-11	METAL CHIP 470 5% 1/16W	
R579	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R580	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R581	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R582	1-216-854-11	METAL CHIP 560K 5% 1/16W	
R583	1-216-852-11	METAL CHIP 390K 5% 1/16W	
R584	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R585	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R586	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R587	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R588	1-216-809-11	METAL CHIP 100 5% 1/16W	
R589	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R590	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R591	1-216-864-11	METAL CHIP 0 5% 1/16W	
R592	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R593	1-216-845-11	METAL CHIP 100K 5% 1/16W	

CS-33P

Ref. No.	Part No.	Description				Remark
R594	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R595	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R598	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R599	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R601	1-216-864-11	METAL CHIP	0	5%	1/16W	
R602	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R603	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R604	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R605	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R606	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R607	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R610	1-216-039-00	METAL CHIP	390	5%	1/10W	
R611	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R612	1-217-671-11	METAL CHIP	1	5%	1/10W	
R613	1-217-671-11	METAL CHIP	1	5%	1/10W	
R614	1-217-671-11	METAL CHIP	1	5%	1/10W	
R615	1-217-671-11	METAL CHIP	1	5%	1/10W	
R616	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R617	1-216-815-11	METAL CHIP	330	5%	1/16W	
R618	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R619	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R620	1-216-033-00	METAL CHIP	220	5%	1/10W	
R621	1-216-033-00	METAL CHIP	220	5%	1/10W	
R622	1-216-864-11	METAL CHIP	0	5%	1/16W	
R624	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R625	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R626	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R627	1-216-864-11	METAL CHIP	0	5%	1/16W	
R628	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R629	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R630	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R631	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R632	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R633	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R634	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R635	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R636	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R637	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R638	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R639	1-216-817-11	METAL CHIP	470	5%	1/16W	
R640	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R641	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R642	1-216-864-11	METAL CHIP	0	5%	1/16W	
R643	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R644	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R645	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R646	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R647	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R648	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R649	1-216-833-11	METAL CHIP	10K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R701	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R702	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R703	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R704	1-216-815-11	METAL CHIP	330	5%	1/16W	
R705	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R706	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R707	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R708	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R709	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R710	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R712	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R713	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R714	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R715	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R716	1-216-863-11	METAL GLAZE	3.3M	5%	1/16W	
R717	1-216-864-11	METAL CHIP	0	5%	1/16W	
R718	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R719	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R721	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R722	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R723	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R724	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R725	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R726	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R727	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R728	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R729	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R730	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R731	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R732	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R733	1-216-814-11	METAL CHIP	270	5%	1/16W	
R734	1-216-816-11	METAL CHIP	390	5%	1/16W	
R735	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R736	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R737	1-216-813-11	METAL CHIP	220	5%	1/16W	
R738	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R739	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R741	1-216-864-11	METAL CHIP	0	5%	1/16W	
R742	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R744	1-216-864-11	METAL CHIP	0	5%	1/16W	
R745	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R746	1-216-864-11	METAL CHIP	0	5%	1/16W	
R748	1-216-864-11	METAL CHIP	0	5%	1/16W	
R749	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R751	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R752	1-216-816-11	METAL CHIP	390	5%	1/16W	
R753	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R754	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R755	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R756	1-216-857-11	METAL CHIP	1M	5%	1/16W	

Ref. No.	Part No.	Description	Remark
R757	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R758	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R759	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R760	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R761	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R762	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R763	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R764	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R765	1-216-814-11	METAL CHIP 270 5% 1/16W	
R766	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R767	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R768	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R769	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R770	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R771	1-216-309-00	METAL CHIP 5.6 5% 1/10W	
R774	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R775	1-216-815-11	METAL CHIP 330 5% 1/16W	
R776	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R777	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R778	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R779	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R780	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R781	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R783	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R784	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R785	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R787	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R788	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R789	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R790	1-216-864-11	METAL CHIP 0 5% 1/16W	
R793	1-216-817-11	METAL CHIP 470 5% 1/16W	
R794	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R795	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R796	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R797	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R799	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R800	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R801	1-216-864-11	METAL CHIP 0 5% 1/16W	
R802	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R803	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R804	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R805	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R806	1-216-864-11	METAL CHIP 0 5% 1/16W	
R808	1-216-801-11	METAL CHIP 22 5% 1/16W	
R809	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R810	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R811	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R812	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R813	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R814	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R815	1-216-818-11	METAL CHIP 560 5% 1/16W	
R816	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R817	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R818	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R819	1-216-805-11	METAL CHIP 47 5% 1/16W	
R822	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R823	1-218-721-11	METAL CHIP 16K 0.50% 1/16W	
R824	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R825	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R826	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R828	1-218-847-11	METAL CHIP 1K 0.50% 1/16W	
R836	1-216-863-11	METAL GLAZE 3.3M 5% 1/16W	
R851	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R852	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R853	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R854	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R855	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R857	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R858	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R859	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R860	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R861	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R862	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R863	1-216-855-11	METAL CHIP 680K 5% 1/16W	
R864	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R865	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R866	1-216-820-11	METAL CHIP 820 5% 1/16W	
R867	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R868	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R869	1-218-744-11	METAL CHIP 150K 0.50% 1/16W	
R870	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R871	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R872	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R873	1-216-816-11	METAL CHIP 390 5% 1/16W	
R874	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R875	1-216-134-00	METAL CHIP 2.2 5% 1/8W	
R876	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R877	1-218-881-11	METAL CHIP 27K 0.50% 1/16W	
R878	1-216-864-11	METAL CHIP 0 5% 1/16W	
R883	1-216-864-11	METAL CHIP 0 5% 1/16W	
R884	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R885	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R891	1-216-295-00	METAL CHIP 0 5% 1/10W	
R892	1-216-295-00	METAL CHIP 0 5% 1/10W	
R893	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R894	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R895	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R898	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R982	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R983	1-216-835-11	METAL CHIP 15K 5% 1/16W	

Ref.No.	Part No.	Description	Remark
R984	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R985	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R986	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R987	1-216-820-11	METAL CHIP 820 5% 1/16W	
R988	1-216-820-11	METAL CHIP 820 5% 1/16W	
R989	1-216-819-11	METAL CHIP 680 5% 1/16W	
R991	1-216-864-11	METAL CHIP 0 5% 1/16W	
R992	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R993	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R994	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R996	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R997	1-216-864-11	METAL CHIP 0 5% 1/16W	
R999	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R5001	1-218-740-11	METAL CHIP 100K 0.50% 1/16W	
R5002	1-218-740-11	METAL CHIP 100K 0.50% 1/16W	
R5003	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5004	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5005	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5006	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5007	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R5008	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R5009	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R5010	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5011	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5012	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5013	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5016	1-216-864-11	METAL CHIP 0 5% 1/16W	
R5020	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R5030	1-216-864-11	METAL CHIP 0 5% 1/16W	
R5033	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5034	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R5040	1-216-295-00	METAL CHIP 0 5% 1/10W	

< RESISTER BLOCK >

Ref.No.	Part No.	Description	Remark
RB501	1-236-420-11	NETWORK, RES 4.7K	
RB502	1-236-424-11	NETWORK, RES 10K	
RB503	1-236-412-11	NETWORK, RES 1.0K	
RB505	1-236-420-11	NETWORK, RES 4.7K	
RB509	1-236-420-11	NETWORK, RES 4.7K	
RB510	1-236-432-11	NETWORK, RES 47K	
RB512	1-236-424-11	NETWORK, RES 10K	
RB513	1-236-432-11	NETWORK, RES 47K	
RB515	1-236-420-11	NETWORK, RES 4.7K	
RB516	1-236-412-11	NETWORK, RES 1.0K	
RB518	1-236-420-11	NETWORK, RES 4.7K	
RB519	1-236-420-11	NETWORK, RES 4.7K	
RB520	1-236-412-11	NETWORK, RES 1.0K	
RB521	1-236-412-11	NETWORK, RES 1.0K	
RB523	1-236-424-11	NETWORK, RES 10K	
RB525	1-236-432-11	NETWORK, RES 47K	
RB526	1-236-408-11	NETWORK, RES 470	
RB528	1-236-432-11	NETWORK, RES 47K	
RB529	1-236-420-11	NETWORK, RES 4.7K	
RB530	1-236-412-11	NETWORK, RES 1.0K	
RB531	1-236-420-11	NETWORK, RES 4.7K	
RB541	1-236-432-11	NETWORK, RES 47K	
RB542	1-236-432-11	NETWORK, RES 47K	
RB543	1-236-432-11	NETWORK, RES 47K	
RB702	1-236-432-11	NETWORK, RES 47K	
RB705	1-236-416-11	NETWORK, RES 2.2K	
RB707	1-236-416-11	NETWORK, RES 2.2K	
RB709	1-236-416-11	NETWORK, RES 2.2K	
RB710	1-236-412-11	NETWORK, RES 1.0K	
RB711	1-236-412-11	NETWORK, RES 1.0K	
RB712	1-236-412-11	NETWORK, RES 1.0K	
RB713	1-236-412-11	NETWORK, RES 1.0K	
RB714	1-236-412-11	NETWORK, RES 1.0K	

< VIBRATOR >

Ref.No.	Part No.	Description	Remark
X501	1-579-368-31	VIBRATOR, CRYSTAL (11.8 MHz)	
X502	1-579-550-11	VIBRATOR, CRYSTAL (32kHz)	
X503	1-578-713-21	VIBLATOR, CERAMIC (4.19MHz)	
X504	1-579-551-11	VIBRATOR, CERAMIC (700 kHz)	
X701	1-579-553-11	VIBRATOR (10MHz)	
X801	1-579-076-11	VIBRATOR, CRYSTAL (28.3737 MHz)	

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A-7071-837-A EJ-26 BOARD (E, AUS)
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A-7071-781-A EJ-26 BAORD (AEP, UK)
****

(Ref. No 1,000 Series)

< CAPACITOR >

Ref.No.	Part No.	Description	Remark
C701	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

< DIODE >

Ref.No.	Part No.	Description	Remark
D701	8-719-404-46	DIODE MA110	
D702	8-719-404-46	DIODE MA110	
D703	8-719-404-46	DIODE MA110	
D705	8-719-017-25	DIODE 02DZ13-TPH3	
D708	8-719-017-25	DIODE 02DZ13-TPH3	
D709	8-719-017-25	DIODE 02DZ13-TPH3	
D710	8-719-017-25	DIODE 02DZ13-TPH3	
D711	8-719-017-25	DIODE 02DZ13-TPH3	
D712	8-719-017-25	DIODE 02DZ13-TPH3	
D713	8-719-017-25	DIODE 02DZ13-TPH3	
D714	8-719-017-25	DIODE 02DZ13-TPH3	

Ref.No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q701	8-729-230-60	TRANSISTOR 2SA1586-YG	
Q703	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q704	8-729-101-07	TRANSISTOR 2SB798-DL	
		< RESISTOR >	
R702	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R703	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R704	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R705	1-216-138-00	METAL CHIP 3.3 5% 1/8W	
R706	1-216-820-11	METAL CHIP 820 5% 1/16W	
R708	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R709	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R711	1-216-864-11	METAL CHIP 0 5% 1/16W	(AEP,UK)
		< SWITCH >	
S701	1-570-134-21	SWITCH, SLIDE (IN/OUT) (E, AUS)	
S702	1-572-498-11	SWITCH, SLIDE (EJECT)	
S703	1-553-977-51	SWITCH, SLIDE (EDIT)	
S704	1-572-283-11	SWITCH, SLIDE (Hi-Fi SOUND)	
S705	1-553-977-51	SWITCH, SLIDE (Hi8)	
		< FLEXIBLE BOARD >	
W701	1-645-161-11	FP-476 FLEXIBLE BOARD	
W702	1-645-164-11	FP-553 FLEXIBLE BOARD	
W703	1-645-163-11	FP-552 FLEXIBLE BOARD	

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Ref.No.	Part No.	Description	Remark
	1-641-639-13	FP-442 FLEXIBLE BOARD *********************	
		< SWITCH >	
S005	1-570-771-21	SWITCH (CC DOWN)	
S001	1-572-986-11	SWTICH, ROTARY (ENCODER)	

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Ref.No.	Part No.	Description	Remark
	A-7071-783-A	JK-83 BOARD ***********	(Ref. No 3,000 Series)
	3-719-381-01	SCREW (M2X4)	
		< CAPACITOR >	
C521	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C522	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		< DIODE >	
D526	8-719-026-18	DIODE MA3091WK-(TX)	
D527	8-719-404-46	DIODE MA110	
D528	8-719-404-46	DIODE MA110	
		< JACK >	
J521	1-537-415-11	TERMINAL BOAD (VIDEO, AUDIO, RFU DC)	
		< COIL >	
L521	1-412-939-11	INDUCTOR 1uH	
L522	1-412-939-11	INDUCTOR 1uH	
		< RESISTOR >	
R523	1-216-864-11	METAL CHIP 0 5% 1/16W	
R524	1-216-864-11	METAL CHIP 0 5% 1/16W	
R525	1-216-864-11	METAL CHIP 0 5% 1/16W	
R526	1-216-864-11	METAL CHIP 0 5% 1/16W	

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Ref.No.	Part No.	Description	Remark
		LM-40 BOARD ***********	(Ref. No 7,000 Series)
		< CONNECTOR >	
CN002	1-568-323-11	CONNECTOR, BOARD TO BOARD 4P	

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Ref.No.	Part No.	Description	Remark
		LS-33 BOARD ***********	(Ref. No 7,000 Series)
		< DIODE >	
D001	8-719-989-52	DIODE GL4600S	
		< HALL >	
H001	8-719-987-62	DIODE LT140SAZ	
H002	8-719-987-62	DIODE LT140SAZ	
		< TRANSISTOR >	
Q001	8-729-012-46	TRANSISTOR PT4600FS	
Q002	8-729-012-46	TRANSISTOR PT4600FS	
		< RESISTOR >	
R003	1-216-033-00	METAL CHIP 220 5% 1/10W	
R004	1-216-033-00	METAL CHIP 220 5% 1/10W	
R010	1-216-033-00	METAL CHIP 220 5% 1/10W	
R011	1-216-033-00	METAL CHIP 220 5% 1/10W	
		< SWITCH >	
S002	1-572-987-11	SWITCH, PUSH (3 KEY)	(REC PROOF, ME/MP, MP/MP-HG)

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MA-131P

Ref. No.	Part No.	Description			Remark
	A-7063-475-A	MA-131P BOARD, COMPLETE			
		***********************			
					(Ref. No 1,000 Series)
		< CAPACITOR >			
C802	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C803	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C804	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C805	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C806	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C807	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C808	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C809	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C811	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C812	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C813	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C814	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C815	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C816	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C817	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C818	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C819	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C822	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C825	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C826	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C827	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C828	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C829	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C830	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C831	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C832	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C833	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C834	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C835	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C836	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C838	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V
C839	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C840	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C841	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN801	1-580-057-11	PIN, CONNECTOR 4P			
CN802	1-580-057-11	PIN, CONNECTOR 4P			
		< DIODE >			
D801	8-719-404-46	DIODE MA110			
		< IC >			
IC801	8-759-710-79	IC NJM2107F			
IC802	8-759-084-53	IC CXA1618AN			

Ref. No.	Part No.	Description			Remark
IC803	8-749-923-29	IC RS-20E-T			
		< JACK >			
J801	1-569-810-11	JACK (SMALL TYPE) (MIC)			
		< COIL >			
L801	1-410-192-51	INDUCTOR CHIP 1uH			
L802	1-410-192-51	INDUCTOR CHIP 1uH			
L803	1-410-192-51	INDUCTOR CHIP 10uH			
		< TRANSISTOR >			
Q801	8-729-230-63	TRANSISTOR 2SC4116-YG			
Q802	8-729-230-63	TRANSISTOR 2SC4116-YG			
Q803	8-729-010-80	TRANSISTOR FC13			
		< RESISTOR >			
R801	1-216-820-11	METAL CHIP	820	5%	1/16W
R802	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R803	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R804	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R806	1-216-845-11	METAL CHIP	100K	5%	1/16W
R807	1-216-845-11	METAL CHIP	100K	5%	1/16W
R808	1-216-841-11	METAL CHIP	47K	5%	1/16W
R809	1-216-841-11	METAL CHIP	47K	5%	1/16W
R810	1-216-845-11	METAL CHIP	100K	5%	1/16W
R811	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R812	1-216-857-11	METAL CHIP	1M	5%	1/16W
R813	1-216-837-11	METAL CHIP	22K	5%	1/16W
R814	1-216-851-11	METAL CHIP	330K	5%	1/16W
R815	1-216-864-11	METAL CHIP	0	5%	1/16W
R816	1-216-857-11	METAL CHIP	1M	5%	1/16W
R817	1-216-857-11	METAL CHIP	1M	5%	1/16W
R818	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R819	1-216-820-11	METAL CHIP	820	5%	1/16W
R820	1-216-833-11	METAL CHIP	10K	5%	1/16W
R821	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R822	1-216-833-11	METAL CHIP	10K	5%	1/16W
R823	1-216-821-11	METAL CHIP	1K	5%	1/16W
R824	1-216-834-11	METAL CHIP	12K	5%	1/16W
R825	1-216-833-11	METAL CHIP	10K	5%	1/16W
R826	1-216-835-11	METAL CHIP	15K	5%	1/16W
R827	1-216-839-11	METAL CHIP	33K	5%	1/16W
R828	1-216-834-11	METAL CHIP	12K	5%	1/16W
R831	1-216-839-11	METAL CHIP	33K	5%	1/16W
R832	1-216-834-11	METAL CHIP	12K	5%	1/16W
R833	1-216-835-11	METAL CHIP	15K	5%	1/16W
R834	1-216-834-11	METAL CHIP	12K	5%	1/16W
R835	1-216-833-11	METAL CHIP	10K	5%	1/16W
R836	1-216-821-11	METAL CHIP	1K	5%	1/16W
R837	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R838	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R840	1-216-805-11	METAL CHIP	47	5%	1/16W
R845	1-216-864-11	METAL CHIP	0	5%	1/16W
R846	1-216-864-11	METAL CHIP	0	5%	1/16W

< FLEXIBLE BOARD >

Ref. No.	Part No.	Description
W802	1-645-162-11	FP-493 FLEXIBLE BOARD

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A-7063-471-A PS-298P BOARD, COMPLETE

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(Ref. No 1,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C930	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C949	1-128-004-11	ELECT CHIP	10uF	20%	16V
C950	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C951	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C952	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C953	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C954	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C955	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C956	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C957	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C958	1-164-172-11	CERAMIC CHIP	0.0056uF	5%	25V
C959	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C960	1-164-172-11	CERAMIC CHIP	0.0056uF	5%	25V
C961	1-126-397-11	ELECT	33uF	20%	25V
C962	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C963	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C965	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C966	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C968	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C969	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C970	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C971	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C972	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C973	1-128-078-11	ELECT	33uF	20%	10V
C974	1-128-004-11	ELECT CHIP	10uF	20%	16V
C975	1-128-078-11	ELECT	33uF	20%	10V
C976	1-128-004-11	ELECT CHIP	10uF	20%	16V
C977	1-127-561-11	ELECT(SOLID)	33uF	20%	10V
C978	1-164-830-11	CERAMIC CHIP	1uF	22%	16V
C979	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C980	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C981	1-164-830-11	CERAMIC CHIP	1uF	22%	16V
C982	1-127-561-11	ELECT(SOLID)	33uF	20%	10V
C983	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C984	1-126-096-11	ELECT	10uF	20%	35V
C987	1-128-004-11	ELECT CHIP	10uF	20%	16V
C988	1-128-078-11	ELECT	33uF	20%	10V
C989	1-127-561-11	ELECT(SOLID)	33uF	20%	10V
C990	1-164-346-11	CERAMIC CHIP	1uF		16V
C991	1-164-346-11	CERAMIC CHIP	1uF		16V
C992	1-128-004-11	ELECT CHIP	10uF	20%	16V
C993	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C994	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C995	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C996	1-164-346-11	CERAMIC CHIP	1uF		16V
C997	1-128-004-11	ELECT CHIP	10uF	20%	16V

< CONNECTOR >

Ref. No.	Part No.	Description
CN950	1-691-538-11	CONNECTOR, BOARD TO BOARD 28P
CN951	1-691-538-11	CONNECTOR, BOARD TO BOARD 28P

< DIODE >

Ref. No.	Part No.	Description	
D950	8-719-989-33	DIODE	FC806
D952	8-719-977-34	DIODE	DTZ12
D953	8-719-977-34	DIODE	DTZ12
D954	8-719-404-46	DIODE	MA110
D961	8-719-404-46	DIODE	MA110
D962	8-719-977-34	DIODE	DTZ12
D963	8-719-977-34	DIODE	DTZ12
D966	8-719-404-46	DIODE	MA110
D969	8-719-404-46	DIODE	MA110
D970	8-719-404-46	DIODE	MA110
D971	8-719-404-46	DIODE	MA110
D972	8-719-404-46	DIODE	MA110

< IC >

Ref. No.	Part No.	Description	
IC950	8-759-064-01	IC	TL1461IDB-E2
IC951	8-759-062-00	IC	MB3788PFV-G-BND-ER

< JACK >

Ref. No.	Part No.	Description
J950	1-537-281-41	TERMINAL BOARD (BATTERY JACK)
J951	1-565-276-21	JACK, ULTRA SMALL 1P (REMOTE)
J952	1-569-809-11	JACK (SMALL TYPE) (HEADPHONES)

< COIL >

Ref. No.	Part No.	Description
L950	1-424-519-21	COIL, MOLD CHOKE 1.0uH
L951	1-424-519-21	COIL, MOLD CHOKE 1.0uH
L952	1-424-519-21	COIL, MOLD CHOKE 1.0uH
L953	1-424-519-21	COIL, MOLD CHOKE 1.0uH
L954	1-424-522-21	COIL, CHOKE 10uH
L955	1-424-522-21	COIL, CHOKE 10uH
L956	1-424-522-21	COIL, CHOKE 10uH
L957	1-424-523-21	COIL, CHOKE 22uH
L958	1-412-034-11	INDUCTOR CHIP 330uH
L959	1-412-034-11	INDUCTOR CHIP 330uH

Ref. No.	Part No.	Description	Remark
L960	1-412-029-11	INDUCTOR CHIP 10uH	
L961	1-412-029-11	INDUCTOR CHIP 10uH	
L962	1-412-029-11	INDUCTOR CHIP 10uH	
L963	1-412-027-11	INDUCTOR CHIP 2.2uH	
L964	1-424-524-21	COIL, CHOKE 47uH	
L965	1-424-524-21	COIL, CHOKE 47uH	
L966	1-412-979-21	INDUCTOR 1uH	
L967	1-412-979-21	INDUCTOR 1uH	
L968	1-412-979-21	INDUCTOR 1uH	
L972	1-412-979-21	INDUCTOR 1uH	
L974	1-412-979-21	INDUCTOR 1uH	
L975	1-412-979-21	INDUCTOR 1uH	
L977	1-412-030-11	INDUCTOR CHIP 22uH	

< IC LINK >

Ref. No.	Part No.	Description	Remark
⚠PS950	1-532-841-21	LINK, IC	
⚠PS951	1-532-841-21	LINK, IC	
⚠PS952	1-532-841-21	LINK, IC	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q951	8-729-804-41	TRANSISTOR 2SB1122-S	
Q952	8-729-823-84	TRANSISTOR FP102	
Q953	8-729-823-82	TRANSISTOR FP101	
Q954	8-729-823-82	TRANSISTOR FP101	
Q955	8-729-403-35	TRANSISTOR UN5113	
Q957	8-729-011-26	TRANSISTOR 2SJ179	
Q958	8-729-920-48	TRANSISTOR IMH2	
Q961	8-729-402-42	TRANSISTOR UN5213	
Q962	8-729-823-95	TRANSISTOR FC149	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R950	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R952	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R953	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R954	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R955	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R956	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R957	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R958	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R959	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R960	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R961	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R962	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R964	1-218-720-11	METAL CHIP 15K 0.50% 1/16W	
R966	1-218-714-11	METAL CHIP 8.2K 0.50% 1/16W	
R967	1-216-864-11	METAL CHIP 0 5% 1/16W	
R968	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R969	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R970	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R971	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R972	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R973	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R974	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R975	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R976	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R977	1-216-041-00	METAL CHIP 470 5% 1/10W	
R978	1-216-041-00	METAL CHIP 470 5% 1/10W	
R979	1-216-295-00	METAL CHIP 0 5% 1/10W	
R980	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R981	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R986	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R991	1-216-809-11	METAL CHIP 100 5% 1/16W	
R994	1-216-846-11	METAL CHIP 120K 5% 1/16W	
R995	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R996	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R997	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R998	1-216-840-11	METAL CHIP 39K 5% 1/16W	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S950	1-571-275-31	SWITCH, SLIDE (REMOTE COMMANDER)	
S951	1-571-275-31	SWITCH, SLIDE (BEEP)	

< TRASFORMER >

Ref. No.	Part No.	Description	Remark
T950	1-450-874-21	TRANSFORMER, DC-DC CONVERTER	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X950	1-579-467-11	VIBRATOR, CERAMIC	

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A-7063-472-A RP-138P BOARD, COMPLETE
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(Ref. No. 2,000 Series)

Ref. No.	Part No.	Description	Remark
*	3-949-198-01	CASE, SHIELD, FE	

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C901	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C902	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C903	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C904	1-162-926-11	CERAMIC CHIP 82PF 5% 50V	
C905	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C906	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C908	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C909	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C910	1-135-177-21	TANTALUM CHIP 1uF 20% 20V	
C911	1-162-914-11	CERAMIC CHIP 9PF 0.5PF 50V	
C912	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C913	1-162-914-11	CERAMIC CHIP 9PF 0.5PF 50V	
C914	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C915	1-162-912-11	CERAMIC CHIP 7PF 0.5PF 50V	
C916	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
C917	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C918	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C919	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C920	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C921	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C922	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C923	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C924	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C925	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C926	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C927	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C928	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C929	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C930	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C931	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C932	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C934	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C935	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C936	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C937	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C938	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C939	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V
C940	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C941	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C942	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C943	1-162-914-11	CERAMIC CHIP	9PF	0.5PF	50V
C944	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C945	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C946	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C947	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C948	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C949	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C950	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C951	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C961	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C962	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C963	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C964	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C965	1-162-976-11	CERAMIC CHIP	75PF	5%	50V
C967	1-162-914-11	CERAMIC CHIP	9PF	0.5PF	50V

< DIODE >

D901	8-719-404-46	DIODE	MA110
D902	8-719-404-46	DIODE	MA110

< IC >

IC901	8-752-033-00	IC	CXA1234AR

< COIL >

Ref. No.	Part No.	Description		Remark
L901	1-412-033-11	INDUCTOR CHIP	220uH	
L902	1-410-381-11	INDUCTOR CHIP	10uH	
L903	1-412-064-11	INDUCTOR CHIP	100uH	
L904	1-410-384-31	INDUCTOR CHIP	18uH	
L905	1-412-066-21	INDUCTOR CHIP	220uH	
L906	1-412-060-11	INDUCTOR CHIP	22uH	
L907	1-412-064-11	INDUCTOR CHIP	100uH	
L908	1-410-384-31	INDUCTOR CHIP	18uH	
L909	1-412-058-11	INDUCTOR CHIP	10uH	
L912	1-412-058-11	INDUCTOR CHIP	10uH	
L913	1-410-379-31	INDUCTOR CHIP	6.8uH	

< TRANSISTOR >

Q901	8-729-905-23	TRANSISTOR	2SA1576-R
Q902	8-729-905-23	TRANSISTOR	2SA1576-R
Q903	8-729-216-22	TRANSISTOR	2SA1162
Q913	8-729-230-63	TRANSISTOR	2SC4116-YG
Q914	8-729-402-42	TRANSISTOR	UN5213
Q915	8-729-402-42	TRANSISTOR	UN5213
Q916	8-729-402-42	TRANSISTOR	UN5213
Q917	8-729-117-73	TRANSISTOR	2SC4178-F14
Q918	8-729-117-73	TRANSISTOR	2SC4178-F14
Q920	8-729-230-63	TRANSISTOR	2SC4116-YG
Q921	8-729-012-50	TRANSISTOR	2SC4400-3/4/5
Q922	8-729-420-24	TRANSISTOR	2SB1218A-QRS

< RESISTOR >

R901	1-216-837-11	METAL CHIP	22K	5%	1/16W
R902	1-216-839-11	METAL CHIP	33K	5%	1/16W
R903	1-216-814-11	METAL CHIP	270	5%	1/16W
R904	1-216-813-11	METAL CHIP	220	5%	1/16W
R905	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R906	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R907	1-216-801-11	METAL CHIP	22	5%	1/16W
R908	1-216-803-11	METAL CHIP	33	5%	1/16W
R909	1-216-818-11	METAL CHIP	560	5%	1/16W
R910	1-216-833-11	METAL CHIP	10K	5%	1/16W
R911	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R912	1-216-839-11	METAL CHIP	33K	5%	1/16W
R913	1-216-837-11	METAL CHIP	22K	5%	1/16W
R914	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R915	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R916	1-216-841-11	METAL CHIP	47K	5%	1/16W
R917	1-216-839-11	METAL CHIP	33K	5%	1/16W
R918	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R919	1-216-840-11	METAL CHIP	39K	5%	1/16W
R920	1-216-839-11	METAL CHIP	33K	5%	1/16W
R921	1-216-812-11	METAL CHIP	180	5%	1/16W
R922	1-216-797-11	METAL CHIP	10	5%	1/16W
R923	1-216-837-11	METAL CHIP	22K	5%	1/16W
R924	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref.No.	Part No.	Description				Remark
R925	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R926	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R927	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R928	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R929	1-216-797-11	METAL CHIP	10	5%	1/16W	
R930	1-216-812-11	METAL CHIP	180	5%	1/16W	
R931	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R932	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R933	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R934	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R935	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R936	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R937	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R938	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R940	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R941	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R942	1-216-818-11	METAL CHIP	560	5%	1/16W	
R943	1-216-817-11	METAL CHIP	470	5%	1/16W	
R945	1-216-819-11	METAL CHIP	680	5%	1/16W	
R946	1-216-818-11	METAL CHIP	560	5%	1/16W	
R947	1-216-819-11	METAL CHIP	680	5%	1/16W	
R950	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R951	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R952	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R953	1-216-864-11	METAL CHIP	0	5%	1/16W	
R954	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R955	1-216-864-11	METAL CHIP	0	5%	1/16W	
R956	1-216-864-11	METAL CHIP	0	5%	1/16W	
R957	1-216-864-11	METAL CHIP	0	5%	1/16W	
R958	1-216-864-11	METAL CHIP	0	5%	1/16W	
R959	1-216-809-11	METAL CHIP	100	5%	1/16W	
R960	1-216-809-11	METAL CHIP	100	5%	1/16W	
R962	1-216-864-11	METAL CHIP	0	5%	1/16W	
R963	1-216-864-11	METAL CHIP	0	5%	1/16W	
R964	1-216-295-00	METAL CHIP	0	5%	1/10W	
R965	1-216-295-00	METAL CHIP	0	5%	1/10W	
		< VARIABLE RESISTOR >				
RV901	1-238-089-11	RES, ADJ, CERMET	4.7K			
RV902	1-238-089-11	RES, ADJ, CERMET	4.7K			
		< FLEXIBLE BOARD >				
W901	1-645-160-11	FP-479 FLEXIBLE BOARD				
W902	1-645-165-11	FP-554 FLEXIBLE BOARD				

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Ref.No.	Part No.	Description				Remark
	A-7071-782-A	SJ-11 BOARD (Ref. No 2,000 Series) ***********				
	7-627-553-47	PRECISION SCREW +P 2X4 TYPE 3				
		< DIODE >				
D052	8-719-026-18	DIODE	MA3091WK-(TX)			
D053	8-719-017-25	DIODE	02DZ13-TPH3			
D055	8-719-026-18	DIODE	MA3091WK-(TX)			
D057	8-719-404-46	DIODE	MA110			
D058	8-719-404-46	DIODE	MA110			
D059	8-719-404-46	DIODE	MA110			
		< JACK >				
J051	1-566-850-31	CONNECTOR, (S) TERMINAL 4P (S VIDEO)				
		< RESISTOR >				
R058	1-216-864-11	METAL CHIP	0	5%	1/16W	
R059	1-216-864-11	METAL CHIP	0	5%	1/16W	
R060	1-216-864-11	METAL CHIP	0	5%	1/16W	
		< FLEXIBLE BOARD >				
W053	1-696-803-11	CABLE, FLAT (FFC-72)				

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Ref.No.	Part No.	Description				Remark
	A-7063-474-A	SL-24P BOARD, COMPLETE ********************** (Ref. No 1,000 Series)				
		< CAPACITOR >				
C403	1-135-177-21	TANTALUM CHIP	1uF	20%	20V	
C405	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C406	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C407	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C409	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C410	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C411	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C412	1-135-177-21	TANTALUM CHIP	1uF	20%	20V	
		< CONNECTOR >				
CN401	1-691-473-21	CONNECTOR, FFC/FPC 7P				
CN403	1-691-472-21	CONNECTOR, FFC/FPC 6P				
CN405	1-691-482-21	CONNECTOR, FFC/FPC 15P				
		< IC >				
IC401	8-759-059-09	IC	LB8111V			

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q400	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q401	8-729-230-63	TRANSISTOR 2SC4116-YG	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R400	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R401	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R402	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R403	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R404	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R405	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R414	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R415	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R416	1-216-864-11	METAL CHIP 0 5% 1/16W	
R419	1-216-296-00	METAL CHIP 0 5% 1/8W	
R421	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R422	1-216-864-11	METAL CHIP 0 5% 1/16W	

< FLEXIBLE BOARD >

Ref. No.	Part No.	Description	Remark
W400	1-645-159-11	FP-477 FLEXIBLE BOARD	
W402	1-696-801-11	CABLE, FLAT (FFC-50)	
W404	1-642-186-11	FP-437 FLEXIBLE BOARD	

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A-7071-763-A SW-202P BOARD, COMPLETE

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(Ref. No 1,000 Series)

< SWITCH >

Ref. No.	Part No.	Description	Remark
S651	1-571-315-11	SWITCH, KEY BOARD (START/STOP)	
S652	1-553-977-00	SWITCH, SLIDE (STANDBY)	

< FLEXIBLE BOARD >

Ref. No.	Part No.	Description	Remark
W651	1-696-802-11	CABLE, FLAT (FFC-73)	

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A-7063-129-A VF-44P BOARD, COMPLETE

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(Ref. No 1,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C501	1-163-115-00	CERAMIC CHIP 82PF 5%	50V
C502	1-126-176-11	ELECT 220uF 20%	10V
C503	1-163-077-00	CERAMIC CHIP 0.1uF 10%	25V
C504	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
⚠C505	1-163-053-00	CERAMIC CHIP 0.0033uF 10%	50V
⚠C506	1-163-058-00	CERAMIC CHIP 0.0082uF 10%	50V
C508	1-127-515-11	ELECT(SOLID) 47uF 20%	6.3V
C509	1-126-090-11	ELECT 82uF 20%	10V
C510	1-164-611-11	CERAMIC CHIP 0.001uF 10%	500V
C511	1-124-257-00	ELECT 2.2uF 20%	50V
C512	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C513	1-137-306-11	FILM CHIP 0.1uF 5%	16V
C514	1-162-638-11	CERAMIC CHIP 1uF	16V
C515	1-131-381-00	TANTALUM 47uF 10%	10V
C516	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C517	1-135-091-00	TANTALUM CHIP 1uF 20%	16V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
* CN501	1-566-762-11	PIN, CONNECTOR (PC BOARD) 7P	
* CN502	1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
* CN503	1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D501	8-719-024-87	DIODE LN1261CAL	
D502	8-719-024-87	DIODE LN1261CAL	
D503	8-719-400-20	DIODE MA152WA	

< IC >

Ref. No.	Part No.	Description	Remark
IC501	8-759-420-01	IC AN2512S	

< COIL >

Ref. No.	Part No.	Description	Remark
L501	1-412-031-11	INDUCTOR CHIP 47uH	
L502	1-410-385-11	INDUCTOR CHIP 22uH	
⚠L503	1-460-220-11	COIL, FERRITE (HLC)	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q501	8-729-216-31	TRANSISTOR 2SA1163-G	
Q503	8-729-106-68	TRANSISTOR 2SD1615A-GP	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R501	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R502	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R503	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R504	1-216-041-00	METAL CHIP 470 5% 1/10W	
R505	1-216-041-00	METAL CHIP 470 5% 1/10W	
R508	1-216-005-00	METAL CHIP 15 5% 1/10W	
R509	1-216-870-11	METAL CHIP 180K 1% 1/10W	
R510	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R511	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R512	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R513	1-216-125-00	METAL CHIP 1.5M 5% 1/10W	
R514	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R515	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R516	1-216-025-00	METAL CHIP 100 5% 1/10W	
R517	1-216-308-00	METAL CHIP 4.7 5% 1/10W	
R518	1-216-336-11	METAL CHIP 47K 1% 1/10W	
R519	1-216-107-00	METAL CHIP 270K 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
R520	1-216-121-00	METAL CHIP	1M	5%	1/10W
R521	1-216-160-00	METAL GLAZE	27	5%	1/8W
R522	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R523	1-216-113-00	METAL CHIP	470K	5%	1/10W
R524	1-216-097-00	METAL CHIP	100K	5%	1/10W
R525	1-216-031-00	METAL CHIP	180	5%	1/10W
R526	1-216-748-11	METAL CHIP	39K	1%	1/10W
		< VARIABLE RESISTOR >			
RV501	1-238-088-11	RES, ADJ, CERMET	2.2K		
RV502	1-241-497-11	RES, ADJ, METAL GLAZE			
RV503	1-238-096-11	RES, ADJ CERMET	1M		
RV504	1-238-092-11	RES, ADJ, CERMET	47K		
RV505	1-238-086-11	RES, ADJ, CERMET	470		
		< SWITCH >			
S501	1-692-032-21	SWITCH, TACTILE (EDIT (+))			
S502	1-692-032-21	SWITCH, TACTILE (EDIT (-))			
		< TRASFORMER >			
⚠T501	1-439-525-11	TRANSFORMER ASSY, FLYBACK			
		< THERMISTOR >			
TH501	1-809-350-21	THERMISTOR, NTC (2125)			
		< FLEXIBLE BOARD >			
W502	1-526-978-51	SOCKET ASSY, CRT			

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A-7063-423-A VF-51P BOARD, COMPLETE

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(Ref. No 6,000 Series)

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C501	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C502	1-126-176-11	ELECT	220uF	20%	10V
C503	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C504	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
⚠C505	1-164-713-11	CERAMIC CHIP	0.0056uF	5%	50V
⚠C507	1-162-625-11	CERAMIC CHIP	0.0047uF	5%	50V
C508	1-127-515-11	ELECT(SOLID)	47uF	20%	6.3V
C509	1-124-577-11	ELECT	82uF	20%	10V
C510	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
C511	1-124-257-00	ELECT	2.2uF	20%	50V
C512	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C513	1-137-306-11	FILM CHIP	0.1uF	5%	16V
C514	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C515	1-131-381-00	TANTALUM	47uF	10%	10V
C516	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C517	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
		< CONNECTOR >			
* CN501	1-566-762-11	PIN, CONNECTOR (PC BOARD) 7P			
* CN502	1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P			
* CN503	1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D501	8-719-024-87	DIODE LN1261CAL			
D502	8-719-024-87	DIODE LN1261CAL			
D503	8-719-400-20	DIODE MA152WA			
		< IC >			
IC501	8-759-420-01	IC AN2512S			
		< COIL >			
L501	1-412-031-11	INDUCTOR CHIP	47uH		
L502	1-410-389-31	INDUCTOR CHIP	47uH		
⚠L503	1-402-725-11	COIL, FERRITE (HLC)			
		< TRANSISTOR >			
Q501	8-729-216-31	TRANSISTOR 2SA1163-G			
Q503	8-729-106-68	TRANSISTOR 2SD1615A-GP			
Q504	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
		< RESISTOR >			
R502	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R503	1-216-047-00	METAL CHIP	820	5%	1/10W
R504	1-216-041-00	METAL CHIP	470	5%	1/10W
R505	1-216-041-00	METAL CHIP	470	5%	1/10W
R508	1-216-003-11	METAL GLAZE	12	5%	1/10W
R509	1-216-101-00	METAL CHIP	150K	5%	1/10W
R511	1-216-131-11	METAL CHIP	2.7M	5%	1/10W
R512	1-216-131-11	METAL CHIP	2.7M	5%	1/10W
R513	1-216-121-00	METAL CHIP	1M	5%	1/10W
R514	1-216-121-00	METAL CHIP	1M	5%	1/10W
R515	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R516	1-216-025-00	METAL CHIP	100	5%	1/10W
R517	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R518	1-216-336-11	METAL CHIP	47K	1%	1/10W
R519	1-216-107-00	METAL CHIP	270K	5%	1/10W
R520	1-216-121-00	METAL CHIP	1M	5%	1/10W
R521	1-216-160-00	METAL GLAZE	27	5%	1/8W
R522	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R523	1-216-113-00	METAL CHIP	470K	5%	1/10W
R524	1-216-097-00	METAL CHIP	100K	5%	1/10W
R525	1-216-033-00	METAL CHIP	220	5%	1/10W
R526	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R527	1-216-689-11	METAL CHIP	39K	0.5%	1/10W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV501	1-238-088-11	RES, ADJ, CERMET 2.2K	
RV503	1-238-561-11	RES, ADJ, METAL GLAZE 1M	
RV504	1-238-092-11	RES, ADJ, CERMET 47K	
RV505	1-238-086-11	RES, ADJ, CERMET 470	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S501	1-692-032-21	SWITCH, TACTILE (EDIT (+))	
S502	1-692-032-21	SWITCH, TACTILE (EDIT (-))	

< TRASFORMER >

Ref. No.	Part No.	Description	Remark
⚠T501	1-439-486-11	TRANSFORMER ASSY, FLYBACK	

< THERMISTOR >

Ref. No.	Part No.	Description	Remark
TH501	1-809-350-21	THERMISTOR, NTC (2125)	

< FLEXIBLE BOARD >

Ref. No.	Part No.	Description	Remark
W502	1-540-019-51	SOCKET ASSY, CRT	

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A-7063-470-A VI-113P BOARD, COMPLETE
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(Ref. No 1,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C001	1-128-004-11	ELECT CHIP	10uF	20%	16V
C002	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C003	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C004	1-126-246-11	ELECT CHIP	220uF	20%	4V
C005	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C006	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C007	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C008	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C009	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C010	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C011	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C012	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C013	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C017	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C018	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C019	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C020	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C022	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C023	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C024	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C025	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C028	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C029	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C033	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C035	1-128-004-11	ELECT CHIP	10uF	20%	16V
C036	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C037	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C038	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C039	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C040	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C041	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C042	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C043	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C044	1-164-362-11	CERAMIC CHIP	470PF	5%	50V
C101	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C102	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C103	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C104	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C105	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C106	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C107	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C108	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C109	1-128-004-11	ELECT CHIP	10uF	20%	16V
C110	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C111	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C112	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C113	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C114	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C115	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C116	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C119	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C120	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C121	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C122	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C123	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C124	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C125	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C126	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C127	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C128	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C129	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C130	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C131	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C132	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C133	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C134	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C135	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C136	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C137	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C138	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C139	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V
C140	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C141	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C142	1-164-460-11	CERAMIC CHIP	62PF	5%	50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VI-113P

Ref.No.	Part No.	Description			Remark
C143	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C144	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C145	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C146	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C147	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C148	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C149	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C150	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C151	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C152	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C153	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C154	1-128-004-11	ELECT CHIP	10uF	20%	16V
C155	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C156	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C157	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C158	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C159	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C160	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C162	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C163	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C164	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C165	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C166	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C167	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C168	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C169	1-164-346-11	CERAMIC CHIP	1uF		16V
C170	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C171	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C173	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C174	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C176	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C177	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C178	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C179	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C180	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C181	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C182	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C183	1-164-346-11	CERAMIC CHIP	1uF		16V
C184	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C185	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C186	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C187	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C188	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C189	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C201	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C202	1-128-004-11	ELECT CHIP	10uF	20%	16V
C203	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C204	1-128-004-11	ELECT CHIP	10uF	20%	16V
C205	1-128-004-11	ELECT CHIP	10uF	20%	16V
C206	1-164-346-11	CERAMIC CHIP	1uF		16V
C207	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C208	1-128-004-11	ELECT CHIP	10uF	20%	16V
C209	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C210	1-128-004-11	ELECT CHIP	10uF	20%	16V
C211	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C212	1-126-246-11	ELECT CHIP	220uF	20%	4V
C213	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C214	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C216	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C217	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C218	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C219	1-126-207-11	ELECT CHIP	33uF	20%	4V
C220	1-128-004-11	ELECT CHIP	10uF	20%	16V
C221	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C222	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C223	1-128-004-11	ELECT CHIP	10uF	20%	16V
C224	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C225	1-128-004-11	ELECT CHIP	10uF	20%	16V
C226	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C227	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C228	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C229	1-128-004-11	ELECT CHIP	10uF	20%	16V
C230	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C231	1-162-942-11	CERAMIC CHIP	12PF	5%	50V
C232	1-128-004-11	ELECT CHIP	10uF	20%	16V
C233	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C234	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C235	1-128-004-11	ELECT CHIP	10uF	20%	16V
C236	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C237	1-128-004-11	ELECT CHIP	10uF	20%	16V
C238	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C239	1-128-008-11	ELECT CHIP	3.3uF	20%	35V
C240	1-162-945-11	CERAMIC CHIP	22PF	5%	50V
C241	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C242	1-128-004-11	ELECT CHIP	10uF	20%	16V
C243	1-162-946-11	CERAMIC CHIP	27PF	5%	50V
C244	1-162-956-11	CERAMIC CHIP	180PF	5%	50V
C245	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C246	1-162-937-11	CERAMIC CHIP	6PF	0.5PF	50V
C247	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C250	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C251	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C252	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C253	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C254	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C255	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C256	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C257	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C258	1-162-956-11	CERAMIC CHIP	180PF	5%	50V
C259	1-162-949-11	CERAMIC CHIP	47PF	5%	50V

Ref.No.	Part No.	Description			Remark
C260	1-128-004-11	ELECT CHIP	10uF	20%	16V
C261	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C262	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C263	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C264	1-162-937-11	CERAMIC CHIP	6PF	0.5PF	50V
C265	1-164-145-11	CERAMIC CHIP	390PF	5%	50V
C266	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C267	1-128-004-11	ELECT CHIP	10uF	20%	16V
C268	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C269	1-128-004-11	ELECT CHIP	10uF	20%	16V
C270	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C271	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C272	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C273	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C275	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C276	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C278	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C279	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C280	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C281	1-162-952-11	CERAMIC CHIP	82P	5%	50V
C282	1-162-948-11	CERAMIC CHIP	39PF	5%	50V
C302	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C304	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C305	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C306	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C307	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C308	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C309	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C311	1-162-951-11	CERAMIC CHIP	68PF	5%	50V
C312	1-162-950-11	CERAMIC CHIP	56PF	5%	50V
C313	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C314	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C315	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C316	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C317	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C318	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C321	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C322	1-128-013-11	ELECT CHIP	1uF	20%	50V
C323	1-128-013-11	ELECT CHIP	1uF	20%	50V
C324	1-135-176-21	TANTALUM CHIP	0.68uF	10%	20V
C325	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C326	1-128-004-11	ELECT CHIP	10uF	20%	16V
C327	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C328	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C329	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V
C330	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C331	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C332	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C333	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C334	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref.No.	Part No.	Description			Remark
C335	1-162-952-11	CERAMIC CHIP	82PF	5%	50V
C336	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C337	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C338	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C339	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C371	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C373	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C374	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C375	1-164-346-11	CERAMIC CHIP	1uF		16V
C376	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C377	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C378	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C379	1-164-383-11	CERAMIC CHIP	110PF	5%	50V
C380	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C381	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C382	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C383	1-164-145-11	CERAMIC CHIP	390PF	5%	50V
C384	1-162-936-11	CERAMIC CHIP	5PF	0.25PF	50V
C385	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C386	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C387	1-162-947-11	CERAMIC CHIP	33PF	5%	50V
C712	1-162-949-11	CERAMIC CHIP	47PF	5%	50V

< CONNECTOR >

CN001	1-691-528-11	CONNECTOR, BOARD TO BOARD 28P
CN002	1-691-530-11	CONNECTOR, BOARD TO BOARD 40P
CN003	1-573-352-11	CONNECTOR, FFC/FPC 12P

< DIODE >

D001	8-719-404-46	DIODE	MA110
D002	8-719-404-35	DIODE	MA141WK
D003	8-719-404-35	DIODE	MA141WK
D006	8-719-404-35	DIODE	MA141WK
D007	8-719-404-46	DIODE	MA110
D008	8-719-404-35	DIODE	MA141WK
D009	8-719-404-46	DIODE	MA110
D010	8-719-404-35	DIODE	MA141WK
D011	8-719-404-35	DIODE	MA141WK
D012	8-719-404-46	DIODE	MA110
D101	8-719-404-46	DIODE	MA110
D103	8-719-404-46	DIODE	MA110
D162	8-719-404-35	DIODE	MA141WK
D202	8-719-404-35	DIODE	MA141WK
D203	8-719-820-05	DIODE	1SS181
D204	8-719-820-05	DIODE	1SS181
D205	8-719-404-35	DIODE	MA141WK
D206	8-719-404-46	DIODE	MA110
D207	8-719-404-46	DIODE	MA110
D208	8-719-404-35	DIODE	MA141WK

VI-113P

Ref.No.	Part No.	Description	Remark
D354	8-719-940-45	DIODE DWA010	
D371	8-719-404-35	DIODE MA141WK	
D372	8-719-404-35	DIODE MA141WK	
		< FILTER >	
FL001	1-236-759-21	FILTER, LOW PASS (TRAP)	
FL002	1-415-731-21	DELAY LINE, LC (YH)	
FL101	1-409-475-21	FILTER, TRAP	
FL161	1-236-848-21	FILTER, LOW PASS	
FL162	1-239-010-11	FILTER, LOW PASS (CCD. PAL. Y)	
FL201	1-239-112-21	FILTER, LOW PASS (Y)	
FL202	1-236-775-11	FILTER, LOW PASS (DEM)	
FL301	1-239-110-11	FILTER, BAND PASS	
FL302	1-236-186-11	FILTER, BAND PASS	
FL303	1-579-371-11	FILTER, CERAMIC	
FL371	1-236-850-11	FILTER, BAND PASS	
		< IC >	
IC001	8-759-038-83	IC MC13400FU	
IC002	8-759-061-70	IC MB86168PFV-ER	
IC003	8-759-710-29	IC NJM2235M	
IC005	8-759-710-07	IC NJM2234M	
IC008	8-759-635-27	IC M62352GP	
IC101	8-752-058-02	IC CXA1509AR	
IC102	8-759-009-10	IC MC14069UBF	
IC161	8-752-333-24	IC CXL1506M	
IC162	8-752-333-24	IC CXL1506M	
IC201	8-752-065-54	IC CXA1207AR-T6	
IC202	8-759-636-33	IC CXA1452N	
IC203	8-752-053-21	IC CXA1211M	
IC204	8-759-710-29	IC NJM2235M	
IC301	8-752-051-40	IC CXA1208R-T4	
IC302	8-752-053-21	IC CXA1211M	
IC371	8-752-605-61	IC CXA1203N-T4	
		< COIL >	
L001	1-412-029-11	INDUCTOR CHIP 10uH	
L004	1-412-029-11	INDUCTOR CHIP 10uH	
L006	1-412-029-11	INDUCTOR CHIP 10uH	
L101	1-412-282-41	INDUCTOR 470uH	
L102	1-410-657-21	INDUCTOR CHIP 180uH	
L103	1-410-388-31	INDUCTOR CHIP 39uH	
L104	1-410-382-31	INDUCTOR CHIP 12uH	
L105	1-412-029-11	INDUCTOR CHIP 10uH	
L106	1-410-389-31	INDUCTOR CHIP 47uH	
L109	1-410-384-31	INDUCTOR CHIP 18uH	
L110	1-410-375-11	INDUCTOR CHIP 3.3uH	
L111	1-410-390-11	INDUCTOR CHIP 56uH	
L112	1-410-386-11	INDUCTOR CHIP 27uH	

Ref.No.	Part No.	Description	Remark
L113	1-410-384-31	INDUCTOR CHIP 18uH	
L114	1-410-384-31	INDUCTOR CHIP 18uH	
L115	1-410-386-11	INDUCTOR CHIP 27uH	
L116	1-412-029-11	INDUCTOR CHIP 10uH	
L117	1-410-655-31	INDUCTOR CHIP 120uH	
L118	1-410-379-31	INDUCTOR CHIP 6.8uH	
L119	1-410-378-11	INDUCTOR CHIP 5.6uH	
L161	1-412-029-11	INDUCTOR CHIP 10uH	
L162	1-412-031-11	INDUCTOR CHIP 47uH	
L163	1-412-029-11	INDUCTOR CHIP 10uH	
L164	1-412-031-11	INDUCTOR CHIP 47uH	
L201	1-410-393-11	INDUCTOR CHIP 100uH	
L202	1-412-029-11	INDUCTOR CHIP 10uH	
L204	1-410-383-31	INDUCTOR CHIP 15uH	
L205	1-410-390-11	INDUCTOR CHIP 56uH	
L207	1-410-383-31	INDUCTOR CHIP 15uH	
L210	1-410-383-31	INDUCTOR CHIP 15uH	
L211	1-410-377-31	INDUCTOR CHIP 4.7uH	
L212	1-410-383-31	INDUCTOR CHIP 15uH	
L213	1-410-379-31	INDUCTOR CHIP 6.8uH	
L214	1-410-385-11	INDUCTOR CHIP 23uH	
L215	1-410-387-11	INDUCTOR CHIP 33uH	
L301	1-412-029-11	INDUCTOR CHIP 10uH	
L302	1-410-393-11	INDUCTOR CHIP 100uH	
L303	1-410-656-11	INDUCTOR CHIP 150uH	
L304	1-410-393-11	INDUCTOR CHIP 100uH	
L305	1-410-655-31	INDUCTOR CHIP 120uH	
L307	1-410-386-11	INDUCTOR CHIP 27uH	
L308	1-410-393-11	INDUCTOR CHIP 100uH	
L309	1-410-655-31	INDUCTOR CHIP 120uH	
L371	1-412-029-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q003	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q005	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q006	8-729-015-74	TRANSISTOR UN5111-TX	
Q007	8-729-422-54	TRANSISTOR XN4215	
Q008	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q009	8-729-402-42	TRANSISTOR UN5213	
Q010	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q011	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q012	8-729-013-15	TRANSISTOR 2SC4909-TL	
Q013	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q014	8-729-013-15	TRANSISTOR 2SC4909-TL	
Q015	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q016	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q017	8-729-402-42	TRANSISTOR UN5213	
Q018	8-729-403-35	TRANSISTOR UN5113	
Q019	8-729-230-63	TRANSISTOR 2SC4116-YG	

Ref.No.	Part No.	Description	Remark
Q102	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q103	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q104	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q105	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q106	8-729-402-42	TRANSISTOR UN5213	
Q107	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q108	8-729-402-42	TRANSISTOR UN5213	
Q109	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q110	8-729-402-42	TRANSISTOR UN5213	
Q111	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q113	8-729-013-15	TRANSISTOR 2SC4909-TL	
Q114	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q115	8-729-402-42	TRANSISTOR UN5213	
Q116	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q161	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q162	8-729-402-42	TRANSISTOR UN5213	
Q163	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q164	8-729-402-42	TRANSISTOR UN5213	
Q165	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q166	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q167	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q168	8-729-402-42	TRANSISTOR UN5213	
Q169	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q170	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q201	8-729-420-12	TRANSISTOR XN4213	
Q202	8-729-420-20	TRANSISTOR XN4312	
Q203	8-729-402-42	TRANSISTOR UN5213	
Q204	8-729-403-35	TRANSISTOR UN5113	
Q206	8-729-402-42	TRANSISTOR UN5213	
Q208	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q209	8-729-403-35	TRANSISTOR UN5113	
Q211	8-729-403-06	TRANSISTOR XN1113	
Q212	8-729-402-42	TRANSISTOR UN5213	
Q213	8-729-402-42	TRANSISTOR UN5213	
Q214	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q215	8-729-824-02	TRANSISTOR 2SA1838	
Q216	8-729-402-42	TRANSISTOR UN5213	
Q217	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q220	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q221	8-729-402-42	TRANSISTOR UN5213	
Q222	8-729-823-16	TRANSISTOR 2SC4555-5.6.7	
Q223	8-729-823-16	TRANSISTOR 2SC4555-5.6.7	
Q224	8-729-402-42	TRANSISTOR UN5213	
Q225	8-729-402-42	TRANSISTOR UN5213	
Q226	8-729-402-42	TRANSISTOR UN5213	
Q227	8-729-403-35	TRANSISTOR UN5113	
Q228	8-729-402-42	TRANSISTOR UN5213	
Q229	8-729-402-42	TRANSISTOR UN5213	
Q230	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q231	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q232	8-729-402-81	TRANSISTOR XN4501	
Q233	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q234	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q235	8-729-403-35	TRANSISTOR UN5113	
Q237	8-729-402-42	TRANSISTOR UN5213	
Q238	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q239	8-729-015-74	TRANSISTOR UN5111-TX	
Q240	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q241	8-729-402-42	TRANSISTOR UN5213	
Q243	8-729-402-42	TRANSISTOR UN5213	
Q244	8-729-402-42	TRANSISTOR UN5213	
Q247	8-729-402-42	TRANSISTOR UN5213	
Q302	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q305	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q306	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q307	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q308	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q309	8-729-403-35	TRANSISTOR UN5113	
Q310	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q311	8-729-402-42	TRANSISTOR UN5213	
Q313	8-729-402-42	TRANSISTOR UN5213	
Q314	8-729-402-42	TRANSISTOR UN5213	
Q371	8-729-403-35	TRANSISTOR UN5113	
Q372	8-729-402-42	TRANSISTOR UN5213	
Q373	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q374	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q375	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q376	8-729-402-42	TRANSISTOR UN5213	
Q377	8-729-402-42	TRANSISTOR UN5213	
Q378	8-729-403-35	TRANSISTOR UN5113	

< RESISTOR >

Ref.No.	Part No.	Description	Remark
R002	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R003	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R004	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R006	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R007	1-216-817-11	METAL CHIP 470 5% 1/16W	
R010	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R013	1-216-864-11	METAL CHIP 0 5% 1/16W	
R015	1-216-820-11	METAL CHIP 820 5% 1/16W	
R016	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R017	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R018	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R019	1-216-864-11	METAL CHIP 0 5% 1/16W	
R020	1-216-864-11	METAL CHIP 0 5% 1/16W	
R023	1-216-803-11	METAL CHIP 33 5% 1/16W	
R024	1-216-804-11	METAL CHIP 39 5% 1/16W	
R025	1-216-014-00	METAL GLAZE 36 5% 1/10W	

VI-113P

Ref.No.	Part No.	Description				Remark
R026	1-216-804-11	METAL CHIP	39	5%	1/16W	
R033	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R034	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R035	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R036	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R037	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R038	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R040	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R042	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R043	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R045	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R047	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R048	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R052	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R053	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R054	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R058	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R062	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R063	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R065	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R066	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R068	1-216-864-11	METAL CHIP	0	5%	1/16W	
R069	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R070	1-216-864-11	METAL CHIP	0	5%	1/16W	
R071	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R072	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R085	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R086	1-216-864-11	METAL CHIP	0	5%	1/16W	
R087	1-216-864-11	METAL CHIP	0	5%	1/16W	
R088	1-216-848-11	METAL CHIP	180K	5%	1/16W	
R089	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R090	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W	
R091	1-218-706-11	METAL CHIP	3.9K	0.50%	1/16W	
R092	1-218-672-11	METAL CHIP	150	0.50%	1/16W	
R093	1-216-864-11	METAL CHIP	0	5%	1/16W	
R094	1-216-864-11	METAL CHIP	0	5%	1/16W	
R095	1-216-864-11	METAL CHIP	0	5%	1/16W	
R099	1-216-864-11	METAL CHIP	0	5%	1/16W	
R100	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R101	1-216-819-11	METAL CHIP	680	5%	1/16W	
R103	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R104	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R105	1-216-813-11	METAL CHIP	220	5%	1/16W	
R106	1-216-818-11	METAL CHIP	560	5%	1/16W	
R107	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R108	1-216-820-11	METAL CHIP	820	5%	1/16W	
R109	1-216-817-11	METAL CHIP	470	5%	1/16W	
R110	1-216-817-11	METAL CHIP	470	5%	1/16W	
R111	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R112	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R113	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R114	1-216-815-11	METAL CHIP	330	5%	1/16W	
R115	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R116	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R117	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R118	1-216-811-11	METAL CHIP	150	5%	1/16W	
R119	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R120	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R121	1-216-817-11	METAL CHIP	470	5%	1/16W	
R122	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R123	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R124	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R125	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R126	1-216-820-11	METAL CHIP	820	5%	1/16W	
R127	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R128	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R129	1-216-864-11	METAL CHIP	0	5%	1/16W	
R130	1-216-864-11	METAL CHIP	0	5%	1/16W	
R131	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R132	1-216-813-11	METAL CHIP	220	5%	1/16W	
R133	1-216-819-11	METAL CHIP	680	5%	1/16W	
R134	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R135	1-216-820-11	METAL CHIP	820	5%	1/16W	
R136	1-216-814-11	METAL CHIP	270	5%	1/16W	
R137	1-216-813-11	METAL CHIP	220	5%	1/16W	
R138	1-216-813-11	METAL CHIP	220	5%	1/16W	
R139	1-216-814-11	METAL CHIP	270	5%	1/16W	
R140	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R141	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R142	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R143	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R144	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R145	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R146	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R147	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R148	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R149	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R150	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R151	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R152	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R153	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R154	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R155	1-216-814-11	METAL CHIP	270	5%	1/16W	
R157	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R159	1-216-820-11	METAL CHIP	820	5%	1/16W	
R160	1-216-820-11	METAL CHIP	820	5%	1/16W	
R161	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R162	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R163	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R164	1-216-815-11	METAL CHIP	330	5%	1/16W	
R165	1-216-810-11	METAL CHIP	120	5%	1/16W	
R166	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R167	1-216-864-11	METAL CHIP	0	5%	1/16W	
R169	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R171	1-216-864-11	METAL CHIP	0	5%	1/16W	
R173	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R174	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R175	1-216-817-11	METAL CHIP	470	5%	1/16W	
R176	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R177	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R178	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R179	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R180	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R181	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R182	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R183	1-216-810-11	METAL CHIP	120	5%	1/16W	
R184	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R185	1-216-864-11	METAL CHIP	0	5%	1/16W	
R187	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R188	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R189	1-216-864-11	METAL CHIP	0	5%	1/16W	
R190	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R191	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R192	1-216-817-11	METAL CHIP	470	5%	1/16W	
R193	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R194	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R195	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R196	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R197	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R200	1-216-864-11	METAL CHIP	0	5%	1/16W	
R202	1-216-864-11	METAL CHIP	0	5%	1/16W	
R203	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R204	1-216-864-11	METAL CHIP	0	5%	1/16W	
R207	1-216-817-11	METAL CHIP	470	5%	1/16W	
R208	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R209	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R210	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R211	1-216-804-11	METAL CHIP	39	5%	1/16W	
R212	1-216-803-11	METAL CHIP	33	5%	1/16W	
R213	1-218-740-11	METAL CHIP	100K	0.50%	1/16W	
R214	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R215	1-216-864-11	METAL CHIP	0	5%	1/16W	
R216	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R218	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R219	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R220	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R221	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R222	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R223	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R224	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R225	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R226	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R227	1-216-864-11	METAL CHIP	0	5%	1/16W	
R228	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R229	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W	
R230	1-216-807-11	METAL CHIP	68	5%	1/16W	
R231	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R232	1-216-864-11	METAL CHIP	0	5%	1/16W	
R233	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R234	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R235	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R236	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R237	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R238	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R239	1-216-864-11	METAL CHIP	0	5%	1/16W	
R240	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R241	1-216-815-11	METAL CHIP	330	5%	1/16W	
R242	1-216-814-11	METAL CHIP	270	5%	1/16W	
R243	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R244	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R245	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R246	1-216-814-11	METAL CHIP	270	5%	1/16W	
R247	1-216-813-11	METAL CHIP	220	5%	1/16W	
R248	1-216-813-11	METAL CHIP	220	5%	1/16W	
R249	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R250	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R251	1-216-814-11	METAL CHIP	270	5%	1/16W	
R252	1-216-817-11	METAL CHIP	470	5%	1/16W	
R253	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R254	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R256	1-216-864-11	METAL CHIP	0	5%	1/16W	
R260	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R261	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R262	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R263	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R264	1-216-817-11	METAL CHIP	470	5%	1/16W	
R265	1-216-816-11	METAL CHIP	390	5%	1/16W	
R266	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R267	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R268	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R269	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R270	1-216-804-11	METAL CHIP	39	5%	1/16W	
R271	1-216-804-11	METAL CHIP	39	5%	1/16W	
R272	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R273	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R275	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	

VI-113P

Ref.No.	Part No.	Description				Remark
R276	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R277	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R278	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R279	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R280	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R281	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R282	1-216-818-11	METAL CHIP	560	5%	1/16W	
R283	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R284	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R285	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R286	1-216-819-11	METAL CHIP	680	5%	1/16W	
R287	1-216-817-11	METAL CHIP	470	5%	1/16W	
R288	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R289	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R290	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R291	1-216-813-11	METAL CHIP	220	5%	1/16W	
R292	1-216-813-11	METAL CHIP	220	5%	1/16W	
R293	1-216-814-11	METAL CHIP	270	5%	1/16W	
R294	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R295	1-216-864-11	METAL CHIP	0	5%	1/16W	
R297	1-216-814-11	METAL CHIP	270	5%	1/16W	
R298	1-216-820-11	METAL CHIP	820	5%	1/16W	
R299	1-216-820-11	METAL CHIP	820	5%	1/16W	
R301	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R302	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R303	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R304	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R305	1-216-813-11	METAL CHIP	220	5%	1/16W	
R307	1-216-864-11	METAL CHIP	0	5%	1/16W	
R309	1-216-864-11	METAL CHIP	0	5%	1/16W	
R310	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R311	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R312	1-216-818-11	METAL CHIP	560	5%	1/16W	
R313	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R314	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R316	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R317	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R318	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R320	1-218-740-11	METAL CHIP	100K	0.50%	1/16W	
R321	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R322	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R323	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R324	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R325	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R326	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R327	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R328	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R329	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R330	1-216-817-11	METAL CHIP	470	5%	1/16W	
R331	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R332	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R333	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R334	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R335	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R336	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R337	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R340	1-216-813-11	METAL CHIP	220	5%	1/16W	
R342	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R343	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R344	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R345	1-216-819-11	METAL CHIP	680	5%	1/16W	
R346	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R356	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W	
R357	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R358	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W	
R359	1-218-688-11	METAL CHIP	680	0.50%	1/16W	
R360	1-216-815-11	METAL CHIP	330	5%	1/16W	
R361	1-216-819-11	METAL CHIP	680	5%	1/16W	
R362	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R363	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R364	1-216-864-11	METAL CHIP	0	5%	1/16W	
R365	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R366	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R368	1-216-817-11	METAL CHIP	470	5%	1/16W	
R369	1-216-864-11	METAL CHIP	0	5%	1/16W	
R371	1-216-864-11	METAL CHIP	0	5%	1/16W	
R372	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R373	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R374	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R375	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R377	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R378	1-218-740-11	METAL CHIP	100K	0.50%	1/16W	
R379	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R380	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R381	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R382	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R383	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R384	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R385	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R386	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R387	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R388	1-216-820-11	METAL CHIP	820	5%	1/16W	
R389	1-216-816-11	METAL CHIP	390	5%	1/16W	
R390	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R391	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R392	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R394	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R395	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R396	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R398	1-809-354-11	THERMISTOR, NTC (2125)				

Ref. No.	Part No.	Description	Remark
R399	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
		< RESISTOR BLOCK >	
RB001	1-236-430-11	NETWORK, RES 33K	
RB002	1-236-425-11	NETWORK, RES 12K	
RB003	1-236-424-11	NETWORK, RES 10K	
RB004	1-236-420-11	NETWORK, RES 4.7K	
		< VARIABLE RESISTOR >	
RV161	1-238-086-11	RES, ADJ, CERMET 470	
		< VIBRATOR >	
X301	1-577-117-21	OSCILLATOR, CRYSTAL (4.433619MHz)	

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A-7063-473-A VK-23P BOARD, COMPLETE (AEP, UK)
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* A-7063-585-A VK-23P BOARD, COMPLETE (E, AUS)
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(Ref. No 2,000 Series)

		< DIODE >	
D541	8-719-017-25	DIODE 02DZ13-TPH3	
D542	8-719-017-25	DIODE 02DZ13-TPH3	
D543	8-719-017-25	DIODE 02DZ13-TPH3	
D544	8-719-404-46	DIODE MA110	
D545	8-719-017-25	DIODE 02DZ13-TPH3	
D546	8-719-017-25	DIODE 02DZ13-TPH3	
D547	8-719-017-25	DIODE 02DZ13-TPH3	
D548	8-719-017-25	DIODE 02DZ13-TPH3	
D549	8-719-404-46	DIODE MA110	
D551	8-719-026-39	DIODE CL-150UR-CD	
D552	8-719-017-25	DIODE 02DZ13-TPH3	
D553	8-719-017-25	DIODE 02DZ13-TPH3	
D554	8-719-404-46	DIODE MA110	
		< RESISTOR >	
R542	1-216-811-11	METAL CHIP 150 5% 1/16W	
		< SWITCH >	
S541	1-572-921-31	SWITCH, KEY BOARD	(FF ▶▶)
S542	1-572-921-31	SWITCH, KEY BOARD	(REW ◀◀)
S543	1-572-921-31	SWITCH, KEY BOARD	(PLAY ▶)
S544	1-572-921-31	SWITCH, KEY BOARD	(STOP ■)
S545	1-572-498-21	SWITCH, SLIDE.	(REC —▶)(E, AUS)
S546	1-572-921-31	SWITCH, KEY BOARD	(PAUSE ▮▮)
S547	1-572-921-31	SWITCH, KEY BOARD	(DATA SCREEN)
S548	1-572-283-11	SWITCH, SLIDE	(POWER)
		< FLEXIBLE BOARD >	
W541	1-646-282-11	FP-571 FLEXIBLE BOARD	

****

A-7071-779-A ZB-1P BOARD, COMPLETE
****
(Ref. No 2,000 Series)

		< BUZZER >	
BU101	1-529-107-11	BUZZER, PIEZOELECTRIC	
		< CAPACITOR >	
C101	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C102	1-163-038-00	CERAMIC CHIP 0.1uF	25V
		< CONNECTOR >	
CN101	1-691-483-21	CONNECTOR, FFC/FPC 4P	
CN102	1-691-485-21	CONNECTOR, FFC/FPC 6P	
		< DIODE >	
D101	8-719-404-46	DIODE MA110	
		< LITHIUM BATTERY >	
LI101	1-550-104-11	HOLDER, BATTERY	
		< RESISTOR >	
R101	1-216-864-11	METAL CHIP 0 5% 1/16W	

****

MISCELLANEOUS
****

26	1-542-162-11	MICROHONE UNIT	
32	1-223-224-11	RING, MF (WITH TACT SWITCH)	
52	1-466-858-11	SWITCH BLOCK, CONTROL	
⚠73	1-451-310-21	DEFLECTION YOKE (B/W) (TYPE A)	
104	1-692-025-11	SWITCH, PUSH (ZOOM SWITCH)	
105	1-645-167-11	FP-606 FLEXIBLE BOARD	
106	1-691-471-11	CONNECTOR, TRANSLATION 11P	
118	1-645-166-11	FP-607 FLEXIBLE BOARD	
122	1-547-529-21	FILTER BLOCK, OPTICAL	
124	1-547-541-11	LENS, ZOOM (VCL-6110WB) (TYPE I)	
124	1-547-594-11	LENS, ZOOM (VCL-6110WD) (TYPE II)	
264	1-568-323-11	CONNECTOR, BOARD TO BOARD 4P	
IC901	A-7030-371-A	CCD BLOCK ASSY(ICX059 AK-2)(CCD IMAGER)	
M901	A-7048-666-A	DRUM ASSY (DGH-94A-R)	
M902	8-835-477-01	MOTOR, DC SCE-0101A (CAPSTAN)	
M903	A-7040-304-A	MOTOR BLOCK ASSY, LM (LOADING)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description	Remark
M904	3-708-385-01	IRIS ASSY (TYPE I)	
M904	3-708-480-01	METER ASSY, IG (IRIS)(TYPE II)	
M905	3-708-389-01	MOTOR ASSY, FOCUS (TYPE I)	
M905	3-708-489-01	MOTOR ASSY, AF (FOCUS)(TYPE II)	
M906	3-708-387-01	MOTOR ASSY, ZOOM (TYPE I)	
M906	3-708-487-01	MOTOR ASSY, PZ (ZOOM) (TYPE II)	
S001	1-572-986-11	SWITCH, ROTARY (ENCODER)	
S002	1-572-987-11	SWITCH, PUSH (3 KEY) (REC PROOF, ME/MP, MP/MP-HG)	
S005	1-570-771-21	SWITCH (C DOWN)	
⚠V901	1-452-565-11	CRT ASSY (TYPE B)	
⚠V901	1-546-091-11	CATHODE-RAY TUBE, B/W (TYPE A)	

****

ACCESSORIES & PACKING MATERIALS
****

Ref.No.	Part No.	Description	Remark
*	3-754-318-01	INSTRUCTION	
	3-755-551-11	MANUAL, INSTRUCTION (AEP,UK) (ENGLISH)	
	3-755-551-41	MANUAL, INSTRUCTION (AEP)(FRENCH,GERMAN,SPANISH)	
	3-755-551-51	MANUAL, INSTRUCTION (AEP) (DUTCH, SWEDISH, ITALIAN)	
	3-756-156-51	MANUAL, INSTRUCTION (E, Australian)(ENGLISH)	
	3-756-156-61	MANUAL, INSTRUCTION (E)(FRENCH,GERMAN,SPANISH)	
	3-756-156-71	MANUAL, INSTRUCTION (E) (ARABIC)	
	3-756-156-81	MANUAL, INSTRUCTION (E) (CHINESE)	
*	3-949-900-21	INDIVIDUAL CARTON	
*	3-949-902-01	CUSHION (LOWER)	
	9-910-999-32	BAG, PROTECTION (UK,E)	
	A-6767-706-A	RFU ADAPTOR (RFU-89EA) (E)	
	A-6768-255-A	RFU ADAPTOR (RFU-90AS) (Australian)	
	1-571-164-11	SWITCH, ANTENNA CHANGE (CABLE) (E)	
	1-573-291-11	CONNECTOR, CONVERSION (AEP,UK)	
	1-575-334-11	CORD, CONNECTION (A/V connecting cable)	
	1-575-335-21	CORD, CONNECTION (S VIDEO connecting cable)	
	1-693-017-11	REMOTE COMMANDER (CAM CODER) (RMT-509)	
	3-712-673-01	SCREWDRIVER (E)	
	3-941-737-01	BELT, SHOULDER	
	3-947-500-01	LID, BATTERY CASE	
*	3-949-901-01	CUSHION, ACC	

** AC-V35/V35A AC POWER ADAPTOR.
*** NP-55H BATTERY PACK.

Note
** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

****

HARDWARE LIST
****

Ref.No.	Part No.	Description	Remark
#1	7-627-553-47	PRECISION SCREW +P 2X4 TYPE 3	
#2	7-628-253-05	SCREW +P 2X4	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7
CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 238.

7-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

7-1-1. List of Service Tools

- Oscilloscope
- Adjusting driver
- Stabilized power supply
- Color monitor
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Part Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	Max gain adjustment (2 used) White balance check
	ND filter 0.4	J-6080-806-A	Max gain adjustment
	ND filter 0.3	J-6080-818-A	White balance check
	ND filter 0.1	J-6080-807-A	Max gain adjustment
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote control unit (RM-95-remodeled in part)[Note 1]	J-6082-053-A	
J-6	Siemens star	J-6080-875-A	Flange back check
J-7	Measuring pin for camera section	J-6082-139-A	For the camera section adjustment
J-8	Conversion connector for mechanism deck	J-6082-167-A	For the mecha deck check
J-9	Extension cord (40P, 0.8 mm)	J-6082-168-A	For extension of VI-113 board (For the video section adjustment) For extension of cabinet R (PANEL SWITCH) (For the camera section adjustment)
	Extension cord (28P, 0.8 mm)	J-6082-174-A	For extension of VI-113 board (For the video section adjustment)
	Extension cord (18P, 0.8 mm)	J-6082-170-A	For extension of CD-78 board (For the repair of the camera section)
J-10	Extension cord (21P, 0.5 mm)	J-6082-171-A	For extension of lens block (For the repair of the camera section)
J-11	Extension cord (26P, 0.8 mm)	J-6082-175-A	For extension of cabinet L (EJ-26, SJ-11 boards) (For the video section adjustment)
J-12	Extension cord (19P, 0.8 mm)	J-6082-183-A	For extension of RP-138 board (For the video section adjustment)
J-13	Extension cord (12P, 0.5 mm)	J-6082-185-A	For extension of VI-113 board (For the video section adjustment)
J-14	Extension cord (28P, 0.8 mm)	J-6082-186-A	For extension of PS-298 board (2 used, for the video section adjustment)

Note: If the micro processor IC in the adjusting remote control unit is not the new micro processor (UPD7503G-C56-12), the switchover of the page cannot be carried out. In this case, replace with the new micro processor (8-759-148-35).

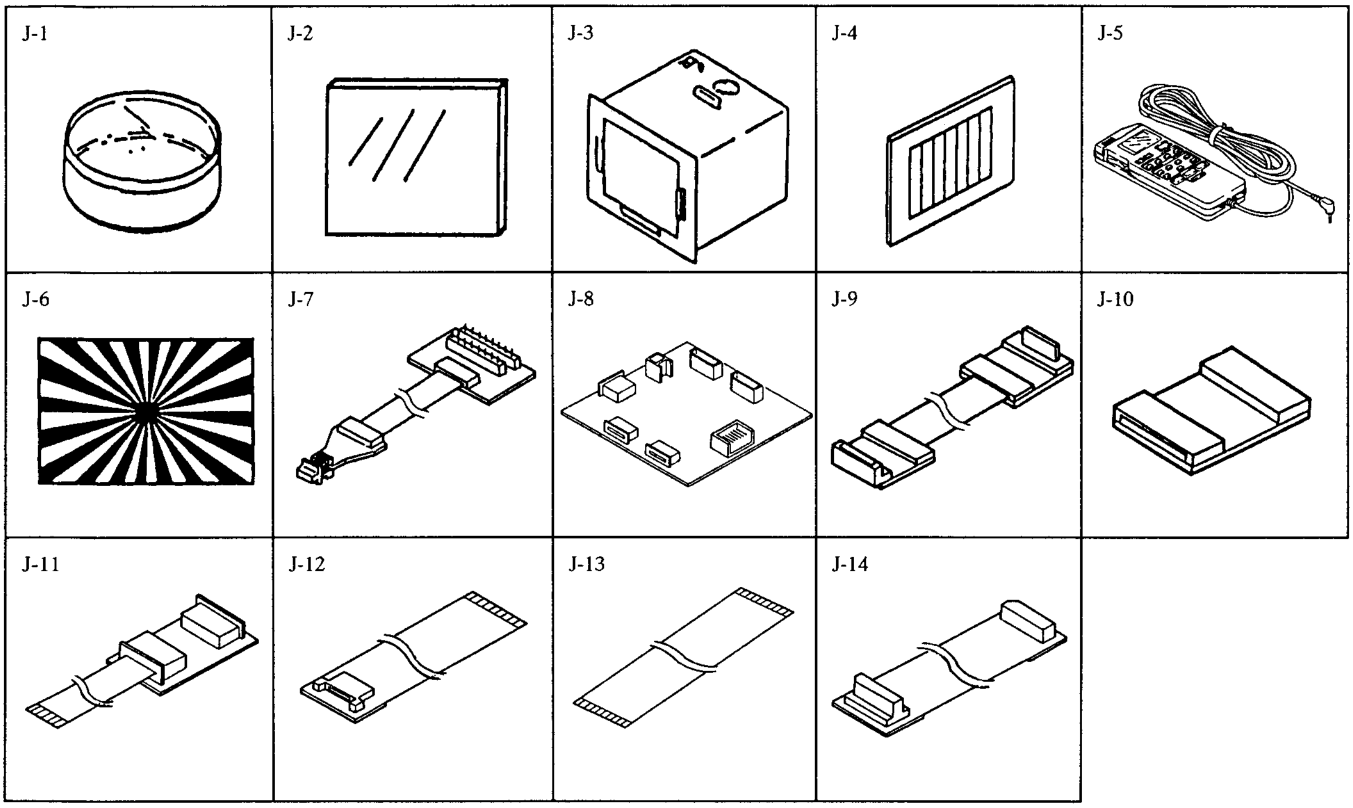

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-8
J-9
J-10
J-11
J-12
J-13
J-14

Fig. 7-1.

7-1-2. Preparations

Note: For further details on how to remove the cabinet and each board, refer to “1. Disassembly”.

1) Connect the equipments for adjustment as shown in Fig. 7-3.

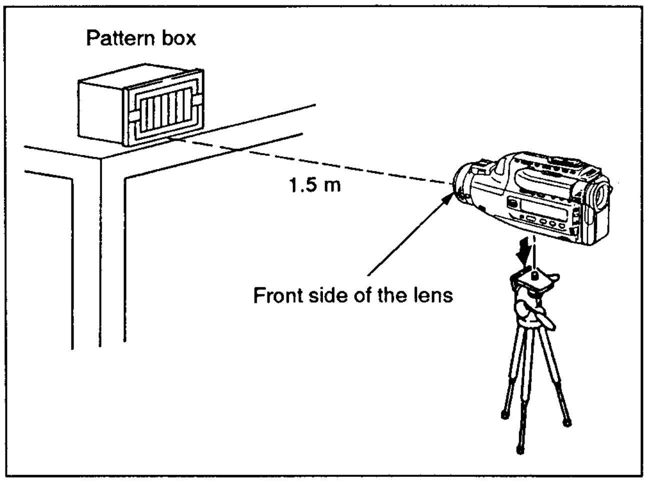

Pattern box
1.5 m
Front side of the lens

Fig. 7-2.

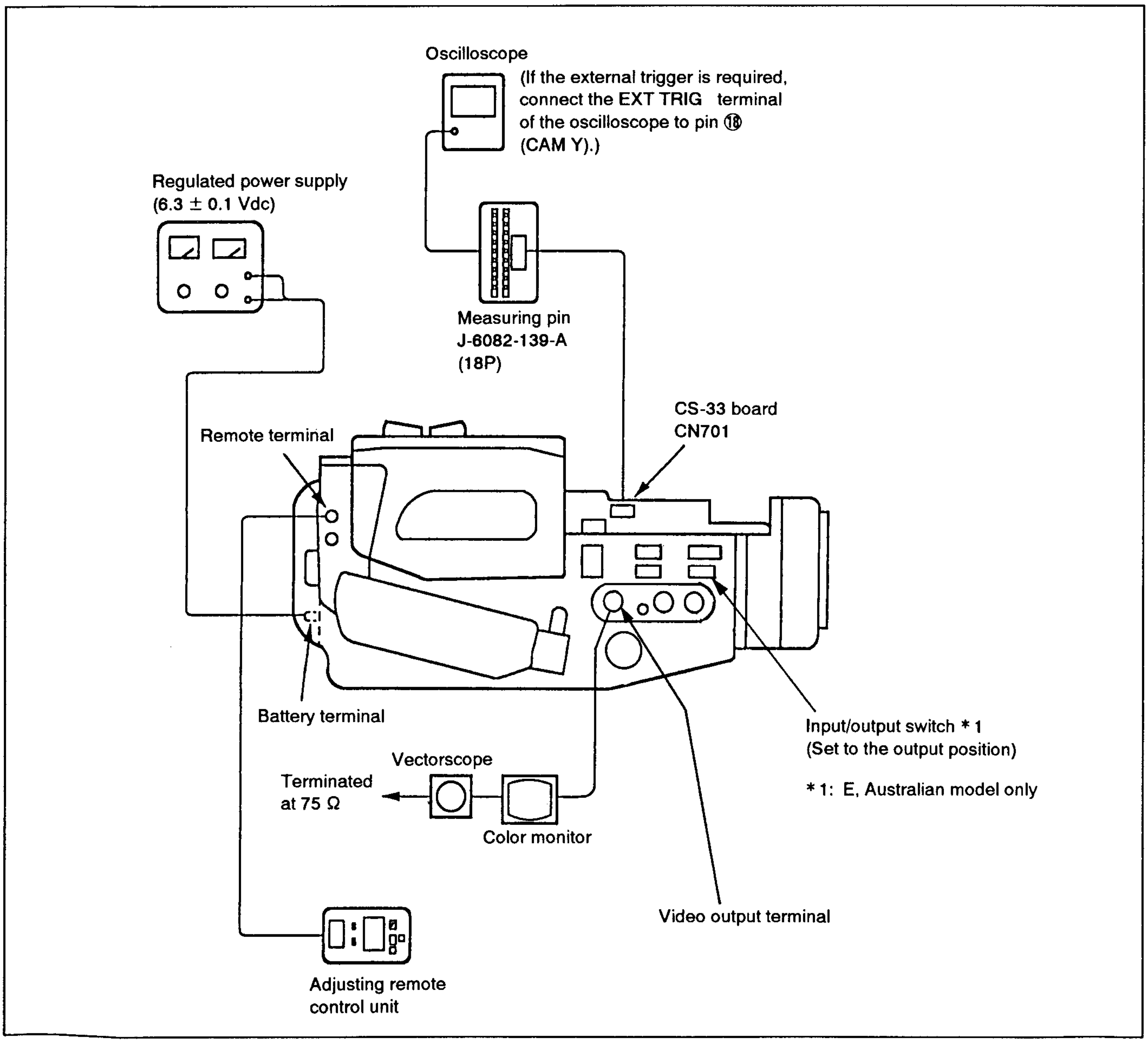

Oscilloscope
(If the external trigger is required, connect the EXT TRIG terminal of the oscilloscope to pin ⑱ (CAM Y).)
Regulated power supply
(6.3 ± 0.1 Vdc)
Measuring pin
J-6082-139-A
(18P)
CS-33 board
CN701
Remote terminal
Battery terminal
Input/output switch * 1
(Set to the output position)
* 1: E, Australian model only
Vectorscope
Terminated at 75 Ω
Color monitor
Video output terminal
Adjusting remote control unit

Fig. 7-3.

7-1-3. Precautions

1. Switch settings

Adjust the switches to the following positions, and perform the adjustments without inserting the tape, unless specified otherwise.

1. Camera/video (or player) power switch (VK-23 board S548) ··············Camera
2. Standby switch (SW-202 board S652)·················· Standby
3. AUTO LOCK switch (CK-56 board S568)················ OFF
4. Input/output switchover switch (EJ-26 board S701) ··············Output
5. EXPOSURE button (PANEL SWITCH)··················· Auto
6. PROGRAM AE button (PANEL SWITCH) ················Off

2. Adjustment Procedure

Perform in the given order as a rule.

3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the display frame as shown in Fig. 7-4. if adjustments are performed using the color bar chart.
   (Standard picture frame)
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and adjust the zoom lever so that the white pattern becomes the same size and is in the same position as the color bar chart (Standard picture frame).

Color bar chart standard picture frame

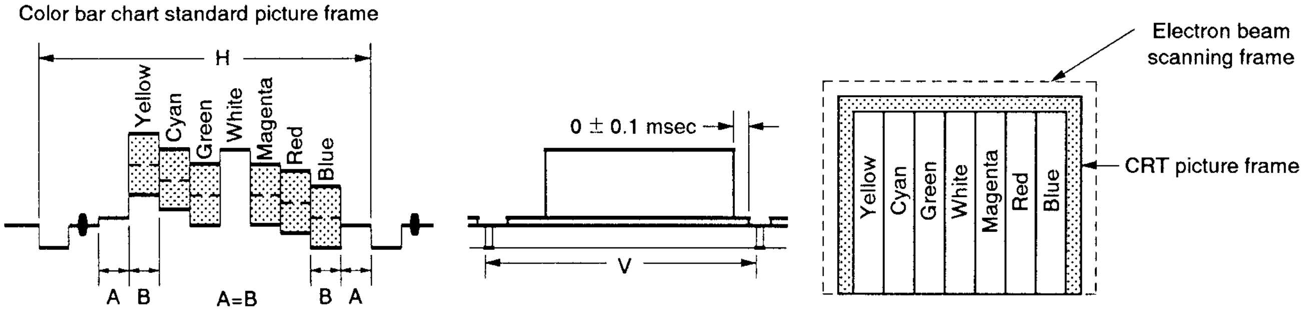

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A
0 ± 0.1 msec
V
Electron beam scanning frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. a (Video input/output terminal output waveform)

Fig. b (Picture on monitor TV)

Adjust the zooming and direction of the camera to obtain the output waveform shown in Fig. a and the monitor TV picture shown in Fig. b.

Fig. 7-4.

3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm× 841 mm) paper to a black one, and make the chart shown in Fig. 7-5.

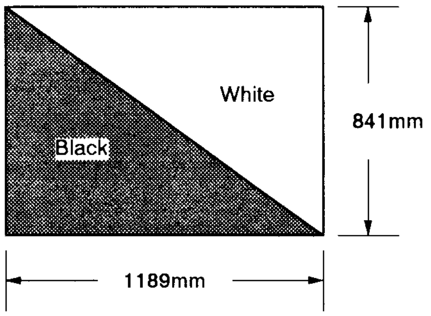

White
Black
841mm
1189mm

Fig. 7-5.

Note: Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

7-1-4. Adjusting Remote Control Unit

The camera section is adjusted by changing the constant using the coefficient of the digital signal processing calculation, or modifying the output voltage of EVR IC (CS-33 board IC702). These processes are carried out by the camera micro processor (CS-33 board IC709). This micro processor reads the data written in the non-volatile memory (CS-33 board IC712), and transmits it to the digital signal processing circuit and EVR.

The adjusting remote control unit is used for rewriting the adjustment data written in the non-volatile memory necessary for performing the adjustments.

The adjusting remote control unit uses the remote control signal line (LANC) to correspond mutually with the camera micro processor. The page, address and the up/down command of the data can be transmitted from the remote control unit to the camera micro processor. On the other hand, the page, address, and data can also be transmitted the other way round.

1. Using the adjusting remote control unit

1) Connect the adjusting remote control unit to the remote terminal (PS-298 board J951).
2) Adjust the HOLD switch of the adjusting remote control unit to HOLD (SERVICE position).
   If it has been properly connected, the LCD on the adjusting remote control unit will show the display in Fig. 7-6.

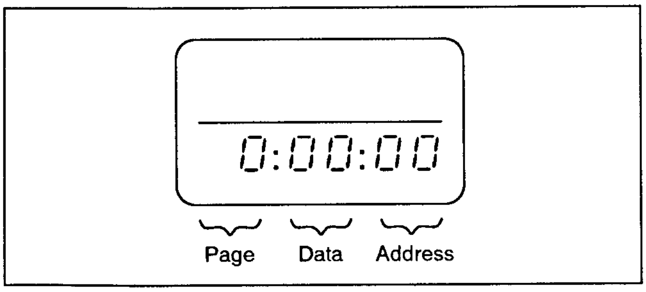


Fig. 7-6.

3) Operate the adjusting remote control unit as follows.
   - Changing the page
     The page will increase when the EDIT SEARCH+ button is pressed. It will decrease when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Display on LCD	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1.

   - Changing the address
     The address will increase when the FF (►►) button is pressed, and decrease when the REW (◄◄) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data will increase when the PLAY (►) button is pressed, and decrease when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     It is necessary to press the PAUSE button to write the adjustment data (F page, D page) in the non-volatile memory.
     (The new adjustment data will not be recorded in the non-volatile memory if this operation is not performed.)
4) Select page: 6, address: 00, and adjust the data to 01. This releases the write protect of page F, and the camera section (F page) can be adjusted.
   (To adjust the titler system (D page), adjust the data of page: 1, address: 00 to 01, and release the protect of page D.)
5) After completing all adjustments, turn off the main power (6.3V) once. This can release the adjustment mode (other than page F).

2. Precautions upon using the adjusting remote control unit

The correct adjustment data may be erased at times, due to operation errors of the adjusting remote control unit. To prevent this from occurring, it is recommended that all adjustment data be recorded in the memory before beginning adjustments, and the new adjustment data be recorded in the memory after each adjustment.

7-1-5. Page F Address List

Note 1: The data listed in the adjustment data memo column are fixed values.

Note 2: The adjustment data initial values are the values after performing "Page F Data Initialization" and "Page F Data Modification". They are different from the value after performing all the adjustments.

Address	Name	Function [ ] Indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
00	ID	Set ID	2F	2F
01	FADER LEVEL	AE REF level modification during fader	E0	E0
02	FADER ENDTIM	The setting of the AE REF modulation time during fader	10	10
03	CS SL	Carrier balance adjustment	35	
04	VSUB	CCD imager V SUB adjustment [IC702 ③]	80	
05	VPGH	CCD imager VRG adjustment [IC702 ④]	80	
06	VREF Y	Camera core Y D/A standard voltage, SYNC level adjustment [IC702 ⑤]	6C	
07	VREF C	Camera core CHROMA D/A standard voltage, BURST level adjustment [IC702 ⑥]	64	
08	HALL GAIN	Hole amplifier gain adjustment [IC702 ⑦] } HALL adjustment	81	
09	HALL OFFSET	Hole amplifier offset adjustment [IC702 ⑧]	77	
0A	E LOWLIGHT START	Low luminance intensity REF level modulation start setting	80	80
0B	REF 2V	2V standard voltage for hole element [IC702 ⑫]	68	68
0C	AD REF	Black level setting during A/D conversion, A/D off set adjustment [IC702 ⑬]	60	
0D	CORE DETH	CCD correction control	04	04
0E	CORE VTR DELAY	1HDL longitudinal setting during VTR playback	16	16
0F	CORE APCN4	Horizontal aperture setting	B5	B5
10	CORE APCN5	Vertical aperture setting	3F	3F
11	CORE EFECT	Special effect control	A0	A0
12	CORE MATR	BLUE matrix constant	26	26
13	CORE MATB	RED matrix constant	6D	6D
14	CORE BURST LEVEL	Burst flag level setting, color modulation ON/OFF Data — Adjustment modeAdjustment 38 — Normal level 3A — Color modulation stopped	38	38
15	CORE CHROMA DLY	Y/C delay adjustment	07	07
16	CORE Y SETUP	Set up level setting	00	00
17	CORE VHAPCN	Slice and level setting of the aperture signal	16	16
18	CORE B-Y GAIN	B–Y GAIN } Color reproduction adjustments	13	
19	CORE R-Y GAIN	R–Y GAIN	11	
1A	CORE R-Y HUE	R–Y HUE	FA	
1B	CORE B-Y HUE	B–Y HUE	FD	
1C	CS/APCCUT	Low luminance intensity aperture and chroma suppress level	22	22

Table 7-2 (1).

Address	Name	Function [ ] indicate the adjustment voltage output terminal		Adjustment data	
				Initial value	Memo column
1D	NEXT LINE DEFECT BIT	CCD correction pattern	CCD imager correction data write	00	
1E	CCD DEFECT0	CCD correction data		00	
1F	CCD DEFECT1	CCD correction data		00	
20	CCD DEFECT2	CCD correction data		00	
21	CCD DEFECT3	CCD correction data		00	
22	CCD DEFECT4	CCD correction data		00	
23	CCD DEFECT5	CCD correction data		00	
24	CCD DEFECT6	CCD correction data		00	
25	CCD DEFECT7	CCD correction data		00	
26	CCD DEFECT8	CCD correction data		00	
27	CCD DEFECT9	CCD correction data		00	
28	CCD DEFECT10	CCD correction data		00	
29	CCD DEFECT11	CCD correction data		00	
2A	CCD DEFECT12	CCD correction data		00	
2B	CCD DEFECT13	CCD correction data		00	
2C	CCD DEFECT14	CCD correction data		00	
2D	RREF L	3200k Red standard data LSB	Auto white balance preset adjustment	41	
2E	RREF H	3200k Red standard data MSB		9C	
2F	GREF L	3200k Green standard data LSB		E5	
30	GREF H	3200k Green standard data MSB		83	
31	BREF L	3200k Blue standard data LSB		E5	
32	BREF H	3200k Blue standard data MSB		2E	
33	RCONTREF	3200k RCONT adjustment value	Pre-white balance adjustment	37	
34	BCONTREF	3200k BCONT adjustment value		5E	
35	AWB NOWM R	Red regular correction coefficient	Auto white balance adjustment	71	
36	AWB NORM B	Blue regular correction coefficient		61	
37	AWB SHUT IN	Indoor determination shutter data		A8	A8
38	ABW SHUT OUT	Outdoor determination shutter data		A0	A0
39	AWB IRIS IN	Indoor determination hole data	IRIS IN/OUT adjustment	79	
3A	AWB IRIS OUT	Outdoor determination hole data		7F	
3B	AWB G LEVEL	High luminance section green integral level		02	02
3C	AWB G WIDTH	High luminance section green integral level range		03	03
3D	DMAT HUE	Variable linear matrix HUE coefficient	Linear matrix adjustment	00	
3E	DMAT GAIN	Variable linear matrix GAIN coefficient		00	
3F	AWB SELECT	AWB mode selection		00	00
40	AWB DIFF	Standard difference from the outdoor fixed value		0A	0A
41	AWB BOTTOM SLP R	AWB incoming frame bottom R coefficient		30	30
42	AWB BOTTOM SLP B	AWB incoming frame bottom B coefficient		58	58
43	AWB MIDDLE SLP R	AWB incoming frame middle R coefficient		62	62
44	AWB MIDDLE SLP B	AWB incoming frame middle B coefficient		47	47
45	AWB TOP SLP R	AWB incoming frame top R coefficient		6C	6C
46	AWB TOP SLP B	AWB incoming frame top B coefficient		1A	1A
47	AWB KEIKO R	AWB incoming frame fluorescent light R coefficient		66	66
48	AWB KEIKO B	AWB incoming frame fluorescent light B coefficient		18	18
49	AWB BOTTOM UP	AWB incoming frame bottom upper value		8C	8C

Table 7-2 (2).

Address	Name	Function [ ] Indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	**Memo column**
4A	AWB BOTTOM DWN	AWB incoming frame bottom lower value	6B	6B
4B	AWB MIDDLE UP	AWB incoming frame middle upper value	B8	B8
4C	AWB MIDDLE DWN	AWB incoming frame middle lower value	9D	9D
4D	AWB TOP UP	AWB incoming frame top upper value	80	80
4E	AWB TOP DWN	AWB incoming frame top lower value	66	66
4F	AWB KEIKO	AWB incoming frame fluorescent light output lower value	6C	6C
50	AWB KEIKO DWN	AWB incoming frame fluorescent light lower value	5C	5C
51	AWB R TOP LMT	AWB incoming frame Rcont upper value	6C	6C
52	AWB R DWN LMT	AWB incoming frame Rcont lower value	20	20
53	AWB B TOP LMT	AWB incoming frame Bcont upper value	83	83
54	AWB B IN TOP	AWB incoming frame Bcont	67	67
55	AWB B IN MAX	AWB incoming frame Bcont	5C	5C
56	AWB B OUT MIN	AWB incoming frame Bcont	5C	5C
57	AWB B OUT DWN	AWB incoming frame Bcont	4A	4A
58	AWB B DWN LMT	AWB incoming frame Bcont lower value	20	20
59	AWB LL LMT	Low luminance intensity limiter	06	06
5A	AWB T M DIVID	AWB incoming frame upper, middle border value	5B	5B
5B	AWB B M DIVID	AWB incoming frame middle, lower border value	3C	3C
5C	AWB DELAY TM	AWB tracking speed Data — Adjustment mode 01 — High speed tracking mode 0A — Normal	0A	0A
5D	AWB FAST TM	AWB initial high speed tracking amount	40	40
5E	AWB OUT HYS OFF	AWB outdoor hysteresis off difference	0C	0C
5F	AWB OUT B HYS	AWB outdoor hysteresis amount	06	06
60	AWB MODE	AWB adjustment mode Data — Adjustment mode 00 — Normal D0 — AWB adjustment mode F1 — Sampling display mode	00	00
61	AE REFL	Reference value (lower) for AE	00	00
62	AE REFH	Reference value (upper) for AE	1B	1B
63	AGC MIN	AGC MIN value (AGCREF value), IRIS level adjustment	E3	
64	AE MIML	Low luminance intensity side limiter (MAXGAIN), MAX GAIN adjustment	32	
65	AE MAXL	High luminance intensity side limiter (lower)	80	80
66	IRIS OFFSET	Iris ROM table OPEN side off set	D0	D0
67	AE KEISU	Correction coefficient during detection weighting	00	00
68	AE FUNCTION	SW for turning each AE function ON and OFF	02	02
69	BL HOSEIH	Forcible back light level setting (upper)	40	40
6A	JITEISU DOWN	Constant during loop response DOWN side	28	28
6B	JITEISU UP	Constant during loop response UP side	0D	0D
6C	AE KNEE	KNEE setting value for AE	FF	FF
6D	ORETEN SET	Variable point due to time constant error amount	13	13

Table 7-2 (3).

Address	Name	Function [ ] indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
6E	OMOMIOUT	Outer frame weighting amount	40	40
6F	AFC WIDE	Coefficient required for the ANF integral loop	03	03
70	AFC GAIN	Loop gain of the flickerless loop	01	01
71	AFC LIMIL	Limiter corresponding to the error rate (Lower)	60	60
72	HIST P KEISU	Histocomp level setting P for counter light determination	20	20
73	HIST H KEISU	Histocomp level setting H for counter light determination	E0	E0
74	HIST L KEISU	Histocomp level setting L for counter light determination	90	90
75	GYKOU JITEISU	Constant during auto back light response	08	08
76	SUBN LIMIT	Limiter for counter light determination	40	40
77	FUZZY RULE1	Correction amount 1 for auto back light	90	90
78	FUZZY RULE2	Correction amount 2 for auto back light	C0	C0
79	FUZZY RULE3	Correction amount 3 for auto back light	B0	B0
7A	FUZZY RULE4	Correction amount 4 for auto back light	A0	A0
7B	FUZZY RULE5	Correction amount 5 for auto back light	70	70
7C	FUZZY RULE6	Correction amount 6 for auto back light	80	80
7D	FUZZY RULE7	Correction amount 7 for auto back light	A0	A0
7E	FUZZY RULE8	Correction amount 8 for auto back light	98	98
7F	FUZZY RULE9	Correction amount 9 for auto back light	90	90
80	FUZZY RULE10	Correction amount 10 for auto back light	78	78
81	IRIS MIN L	Iris limit value for small iris (Lower)	42	42
82	IRIS MIN H	Iris limit value for small iris (Upper)	02	02
83	DELTA SHUTGAIN	Smoothing amount setting	04	04
84	AE WAKUH	Frame data for AE detection (vertical line)	0F	0F
85	AE WAKUV	Frame data for AE detection (horizontal line)	4F	4F
86	WIDE LIMIT	ZOOM limiter WIDE (lower) Flange back adjustment	00	
87	WIDE LIMITH	ZOOM limiter WIDE (upper)	00	
88	TELE LIMIT	ZOOM limiter TELE (lower)	00	
89	TELE SIMITH	ZOOM limiter TELE (upper)	04	
8A	STEP ZERO	Flange back value	60	
8B	STEP ZERO SPAN (VAP ONLY)	Flange back value 2	6D	
8C	ZOOM SPD FAST	Zoom speed (fast)	1C	1C
8D	ZOOM SPD SUPER	Zoom speed (For adjustment)	89	89
8E	ZS INIT SLOW	Zoom speed initial value (slow)	89	89
8F	ZS INIT FAST	Zoom speed initial value (fast)	F0	F0
90	ZMSPD DAMIN	Zoom speed D/A MIN value	3D	3D
91	ZS K	Zoom servo coefficient K	12	12
92	ZS L	Zoom servo coefficient L	02	02
93	ZP HYS	Zoom potential hysteresis	05	05
94	ZOOM SPDSLOW	Zoom speed (slow)	08	08
95	AF MD2THL	MODE2 THR	20	20
96	MAXCHG THR	MAX value renewal THR	1A	1A
97	ERR THL	Wobbling width THR	18	18
98	WOB INTV	Wobbling second interval	04	04
99	ERRPOL THR	MODE2 error possible THR	13	13

Table 7-2 (4).

<table>
<tr><th rowspan="2">Address</th><th rowspan="2">Name</th><th rowspan="2">Function
[ ] Indicate the adjustment voltage output terminal</th><th colspan="2">Adjustment data</th></tr>
<tr><th>Initial value</th><th>Memo column</th></tr>
<tr><td>9A</td><td>MAXCHK THR</td><td>MAX CHECK THR</td><td>12</td><td>12</td></tr>
<tr><td>9B</td><td>REWOB THR</td><td>Wobbling second THR</td><td>0A</td><td>0A</td></tr>
<tr><td>9C</td><td>MODE2 INOUT</td><td>MODE2 speed switchover</td><td>80</td><td>80</td></tr>
<tr><td>9D</td><td>SMLWD THR</td><td>Small frame THR</td><td>0A</td><td>0A</td></tr>
<tr><td>9E</td><td>ZOOM PULSE LIMIT</td><td>Maximum zoom pulse value</td><td>F0</td><td>F0</td></tr>
<tr><td>9F</td><td>ZOOM RIZE</td><td>Zoom rise minimum speed time</td><td>0A</td><td>0A</td></tr>
<tr><td>A0</td><td>FB CURVEPEAKL</td><td>Constant for flange back adjustment</td><td>25</td><td>25</td></tr>
<tr><td>A1</td><td>FB CURVEPEAKH</td><td>Constant for flange back adjustment</td><td>72</td><td>72</td></tr>
<tr><td>A2</td><td>FB ZOOMSH</td><td>Constant for flange back adjustment</td><td>D2</td><td>D2</td></tr>
<tr><td>A3</td><td>FB ZOOMSH</td><td>Constant for flange back adjustment</td><td>03</td><td>03</td></tr>
<tr><td>A4</td><td>LIMITREST WIDE</td><td>Zoom limiter WIDE side</td><td>10</td><td>10</td></tr>
<tr><td>A5</td><td>LIMITREST TELE</td><td>Zoom limiter TELE side</td><td>10</td><td>10</td></tr>
<tr><td>A6</td><td>FB PEAKTHR</td><td>Constant for flange back adjustment</td><td>80</td><td>80</td></tr>
<tr><td>A7</td><td>FB FOCUSZERO</td><td>Constant for flange back adjustment</td><td>D8</td><td>D8</td></tr>
<tr><td>A8</td><td>DET IRIS ALT</td><td>Iris variation check THR</td><td>02</td><td>02</td></tr>
<tr><td>A9</td><td>DET AGC ALT</td><td>AGC variation check THR</td><td>02</td><td>02</td></tr>
<tr><td>AA</td><td>LIMIT INSURANCE</td><td>Focus limiter insurance value</td><td>05</td><td>05</td></tr>
<tr><td>AB</td><td>FOCUS MODE</td><td>Focus mode
<table>
<tr><th>Data</th><th>Adjustment mode</th></tr>
<tr><td>08</td><td>Zoom, Focus fixed</td></tr>
<tr><td>00</td><td>Normal</td></tr>
</table></td><td>00</td><td>00</td></tr>
<tr><td>AC</td><td>LENS ADJ MOD</td><td>Flange back adjustment mode
<table>
<tr><th>Data</th><th>Adjustment mode</th></tr>
<tr><td>00</td><td>Nomal</td></tr>
<tr><td>01</td><td>Flange back adjustment</td></tr>
</table></td><td>00</td><td>00</td></tr>
<tr><td>AD</td><td>ELENS EMRG</td><td>Lens emergency</td><td>00</td><td>00</td></tr>
<tr><td>AE</td><td>NTSC PAL/H DEF DELAY</td><td>DELAY bit=0: NTSC, 1: PAL, bit4-7=CCD correction delay</td><td>1F</td><td>1F</td></tr>
<tr><td>AF</td><td>FT SW</td><td>DDS display mode switchover
<table>
<tr><th>Data</th><th>DDS display mode</th></tr>
<tr><td>00</td><td>Y sampling display</td></tr>
<tr><td>03</td><td>R-Y, B-Y display</td></tr>
<tr><td>40</td><td>HALL data display</td></tr>
<tr><td>82</td><td>R ratio display</td></tr>
<tr><td>83</td><td>b ratio display</td></tr>
<tr><td>91</td><td>R.B ratio (M) display</td></tr>
<tr><td>B0</td><td>Focus step display</td></tr>
</table></td><td>00</td><td>00</td></tr>
<tr><td>B0</td><td>CORE OTHER</td><td></td><td>36</td><td>36</td></tr>
<tr><td>B1</td><td>CORE YGAIN</td><td>Core field data 0 byte gain</td><td>3F</td><td>3F</td></tr>
<tr><td>B2</td><td>LOW LIGHT APC</td><td>AGC point for aperture compensation cut start</td><td>20</td><td>20</td></tr>
<tr><td>B3</td><td>FB WTHR</td><td>Constant for flange back adjustment</td><td>00</td><td>00</td></tr>
<tr><td>B4</td><td>E LOWLIGHT START 2</td><td>Low luminance intensity REF level modulation start setting 2</td><td>40</td><td>40</td></tr>
<tr><td>B5</td><td>E LOWLIGHT LEVEL</td><td>Low luminance intensity REF level modulation level setting</td><td>F0</td><td>F0</td></tr>
<tr><td>B6</td><td>ZOOM DROP 1</td><td>F-No. dropping (1) by zoom lens</td><td>00</td><td>00</td></tr>
<tr><td>B7</td><td>ZOOM DROP 2</td><td>F-No. dropping (2) by zoom lens</td><td>95</td><td>95</td></tr>
<tr><td>B8</td><td>LOW LIGHT POINT</td><td>AGC point for chroma suppress start</td><td>20</td><td>20</td></tr>
<tr><td>B9</td><td></td><td></td><td></td><td></td></tr>
</table>

Table 7-2 (5).

Address	**Name**	**Function** **[ ] indicate the adjustment voltage output terminal**	**Adjustment data**	
			Initial value	**Memo column**
BA	AWB in B hys	AWB indoor hysteresis amount (B)	04	04
BB	AWB in R hys	AWB indoor hysteresis amount (R)	02	02
BC	AWB Kake norm R	Coefficient for ADR35 NORM R reference value	20	20
BD	AWB Kake norm B	Coefficient for ADR36 NORM B reference value	40	40
BE	MF STEP CHNGE	MODE 2 THR coefficient	06	06
BF	ZOOM SPEED SUPER SLOW	Zoom speed (Super slow speed)	08	08
C0	ZOOM INT SUPER SLOW	Zoom speed initial value (Super low speed)	89	89
C1	AF CONTROL FLAG		3C	3C
C2	AE Y THR	Low luminous intensity AE Y THR1	40	40
C3	AE Y MIN	Low luminous intensity AE Y THR2	18	18
C4	MD2 SPD	Focus speed at MODE 2	41	41
C5	AE CHECK	THR for activating re-start up from MODE 7, 8	30	30
C6	LOWCON THR1	THR1 for judging LOW CON at MODE 2	10	10
C7	LOWCON THR2	THR2 for judging LOW CON at MODE 2	20	20
C8~EF		Not used		
F0		Input column of the unit ID No., etc. Not related to unit operations.	FF	
F1			FF	
F2			FF	
F3			FF	
F4			FF	
F5			FF	
F6			FF	
F7			FF	
F8			FF	
F9			FF	
FA			FF	
FB			FF	
FC			FF	
FD			FF	
FE			FF	
FF			FF	

Table 7-2 (6).

7-1-6. 6 Page, 1 Page Address List

The camera adjustment mode can be set by performing the following data settings at page: 6 or page: 1. (These page data can be set temporary, but when the main power (6.3V) is turned off, the original value (normal value) will be returned. Therefore, these adjustment modes can be released very simply by turning the main power off.)

(Example) The camera adjustment mode (window OFF) is set by setting data: 01 to page: 6, address: 00. The F page write protect will also be released.

1. Page 6

Address	Adjustment Mode	Data	Function
00	Camera adjustment mode	01 10 11	Camera adjustment mode (window OFF), F page write protect released Normal Camera adjustment mode (window ON), F page write protect released
01	Camera adjustment switch **Note:** To set this address adjustment mode, it is necessary to press the PAUSE button of the adjusting remote control unit after setting the data.	00 01 03 05 07 09 0B 0D 0F 11 13 15 1F	Normal IRIS OPEN, AGC HOLD IRIS CLOSE1, AGC HOLD IRIS CLOSE2, AGC MIN IRIS CLOSE3, AGC MAX ND0.5 SHUTTER (PAL=1/160, NTSC=1/190) ND0.8 SHUTTER (PAL=1/320, NTSC=1/380) AWB PRESET1: 3200K PRESET DATA take in WB 3200K PRESET: Indoor white balance mode AWB PRESET2: 3200K PRESET DATA take in ZOOM HUNTING1 ZOOM SPDSLOW ZOOM HUNTING2 ZOOM SPDFAST EEPROM PRE WRITE: Page F initial data write
05	Shutter mode	00 15 19	NTSC=1/60, PAL=1/50 NTSC=1/2000, PAL=1/2000 NTSC=1/4000
08	ZOOM speed SLOW/FAST	00 01 02 03	Normal ZOOM speed SLOW (10 second) ZOOM speed FAST (3.5 second) ZOOM speed SLOW (10 second)
09 ★	COMPLEATED FLAG	00 01	Camera Adjustment not completed Camera adjustment completed
11 ★	ROM VERSION	01	Camera micro processor ver1

Addresses with ★ are exclusively for reading.

Table 7-3.

2. Page 1

Address	Adjustment Mode	Data	Function
E6	VH address L		Title horizontal/vertical position (L)
E7	VH address H		Title horizontal/vertical position (H)

Table 7-4.

7-1-7. Adjustment Connector

Most of the measuring points for the camera section adjustment are concentrated on CN701 of the CS-33 board. Connect the oscilloscope and etc. via the measuring pin (J-6082-139-A). The following table lists the terminal numbers and the signal names of CN701.

Terminal Number	Signal Name	Terminal Number	Signal Name
1	EVER 5V	2	NC
3	ZOOM SW	4	CAM SI
5	$\overline{\text{CS ROM}}$	6	CAM SO
7	$\overline{\text{CS OPD}}$	8	$\overline{\text{CAM SCK}}$
9	$\overline{\text{CS CORE}}$	10	GND
11	IRIS OUT	12	NC
13	V SUB CHK	14	C OUT
15	PG CONT	16	GND
17	NC	18	Y OUT

Table 7-5.

7-1-8. Data Processing

The calculation of the DDS display and the adjusting remote control unit display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 7-6. indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

The lower digits of the hexadecimal notation The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	80	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① **B (b)**	176	177	178	179	180	180	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) indicate the adjusting remote control unit display.

(Example) In the case that the DDS display and the adjusting remote control unit display are BD (b d).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 7-6.

7-2. CAMERA SYSTEM ADJUSTMENT

1. Power Supply Voltage Check (PS-298 board)

Subject	Option
Measuring instrument	Digital voltmeter
D5V check	
Measurement point	Pins ① and ② of CN951
Specified value	4.88 ± 0.15 Vdc
CAM 5V check	
Measurement point	Pins ㉔ and ㉕ of CN950
Specified value	4.81 ± 0.15 Vdc
15V check	
Measurement point	Pin ㉓ of CN950
Specified value	15.0 ± 0.4 Vdc
-9V check	
Measurement point	Pin ㉒ of CN950
Specified value	-8.5 ± 0.4 Vdc

Checking method:

1) Check that each power supply voltage satisfies the specified value.

2. Page F Data Initialization

Note: It is necessary to perform all adjustments of the camera section from the beginning again if the data of page F has been initialized.

Initializing method:

1) Memorizing each data of address: 1D to address: 2C of page: F (CCD imager correction data).
2) Release the protect.
   Page: 6, address: 00, data: 01.
3) Check that the data of page: 6, address: 09 is 00.
   (Display indicating that page F data can be initialized)
4) Set data: 1D to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Page F data initialization execution.
   The data of all addresses of page F will be initialized.)
5) Check that the data of page: 6, address: 09 is 01.
   (Displays that the initialization of page F data has been completed)
6) Set data: 00 to page: 6, address: 01. and press the PAUSE button of the adjusting remote control unit.
   (Releases the page F data initialization mode)
7) After performing "Page F data modification", perform all the adjustments of the camera section (page F).

3. Page F Data Modification

The data (initial data) that is automatically written on page F after the initialization of the page F data will differ according to some camera micro processor versions. Change the data by manual input, and arrange it.

Note: When changing the data, to write the data to the non-volatile memory, press the PAUSE button of the adjusting remote control unit every time the new data is set.

In the case of camera micro processor Ver.1, change the data listed below.

Address	Data
00 (ID)	2F
0A (E LOWLIGHT START)	80
11 (CORE EFECT)	A0
14 (CORE BURST LEVEL)	38
15 (CORE CHROMA DLY)	07
16 (CORE Y SETUP)	01
4C (AWB MIDDLE DWN)	9D
5C (AWB DELAY TM)	0A
62 (AE REFH)	1B
68 (AE FUNCTION)	02
6A (JITEISU DOWN)	28
6B (JITEISU UP)	0D
8C (ZOOM SPD FAST)	1C
8D (ZOOM SPD SUPER)	89
8E (ZS INIT SLOW)	89
8F (ZS INIT FAST)	F0
94 (ZOOM SPD SLOW)	08
9E (ZOOM PULSE LIMIT)	F0
AE (NTSC PAL/H DEF DELAY)	1F
B0 (CORE OTHER)	36
B1 (CORE Y GAIN)	3F
B2 (LOW LIGHT APC)	20
B4 (E LOWLIGHT START 2)	40
B8 (LOW LIGHT POINT)	20
BF (ZOOM SPEED SUPER SLOW)	08
C0 (ZOOM INT SUPER SLOW)	89

[Distinguishing the Camera Micro Computer (IC709) Versions]

Each version can be distinguished by looking at the part name of the camera micro processor or the data of page: 6, address: 11.

Version	Part Name	Page: 6 Address: 11
Ver.1	CXP80624-419Q	01

4. 28 MHz Original Oscillation Adjustment (CS-33 board)

Subject	Not required
Measurement Point	CL821 (pin (57) of IC801)
Measuring Instrument	Frequency counter
Adjusting Element	CT801
Specified Value	14187500 ± 71 Hz

Adjusting method:

1) Use CT801 to adjust the oscillation frequency to 14187500 ± 71 Hz.

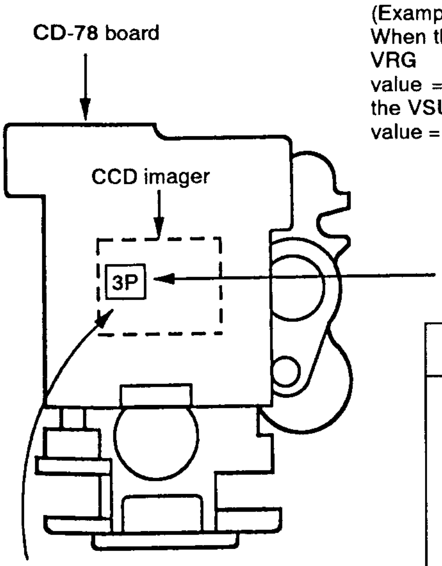
5. V SUB Adjustment (CS-33 board)

Subject	Not required
Measurement Point	Pin ⑬ of CN701 (V SUB CHK)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	04 (V SUB)
Specified Value	(Imager display voltage) ± 0.1 Vdc

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Change the data of page: F, address: 04, and adjust the voltage of pin ⑬ of CN701 to (imager display voltage) ± 0.1 Vdc.
3) Press the PAUSE button of the adjusting remote control unit.

(Example)
When the display is 3P, the VRG voltage specified value =2.0 ± 0.1 Vdc, and the VSUB voltage specified value =13.5 ± 0.1 Vdc.



VRG voltage code address

Code address	Voltage (Vdc)
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

VSUB voltage code address

Code address	Voltage (Vdc)
E	9.0
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5

Fig. 7-7.

6. VRG Adjustment (CS-33 board)

Subject	Not required
Measurement Point	Pin ⑮ of CN701 (PG CONT)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	05 (VRG)
Specified Value	(Imager display voltage) ± 0.1 Vdc

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Change the data of page: F, address: 05, and adjust the voltage of pin ⑮ of CN701 to (imager display voltage) ± 0.1 Vdc.
3) Press the PAUSE button of the adjusting remote control unit.

7. CCD Imager Correction Data Write

Subject	Not required
Adjustment Page	F
Adjustment	1D to 2C (CCD-DEFECT)

Perform CCD imager correction data write in the following cases.

1. When the CCD imager has been replaced
2. When the page F data has been initialized

In the case of 1, as the correction data is not required for the CCD imager for repair, adjust all data of addresses 1D to 2C to "00".

In the case of 2, write the correction data memorized at "Page F Data Initialization" to addresses 1D to 2C.

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Write the correction data to page: F, addresses: 1D to 2C.
   Note: To perform write to the non-volatile memory, press the PAUSE button of the adjusting remote control unit.

8. HALL Adjustment

Subject	Not required
Measurement Point	DDS display of EVF or monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	08 (HALL GAIN) 09 (HALL OFFSET)
Specified Value	31 TO 35 during IRIS OPEN B1 to B5 during IRIS CLOSE

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Set data: 40 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (HALL output display mode setting)
3) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE mode setting)
4) Set data: 40 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
5) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the monitor TV display), and set to W_2.
6) Set data: 30 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
7) Read the DDS display data, and set to W_1.
8) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS OPEN mode setting)
9) Read the DDS display data, and set to K_1.
10) Set data: 40 to page: F, address: 08, and press the PAUSE button.
11) Read the DDS display data, and set to K_2.
12) Convert W_1, W_2, K_1, K_2 to decimal notation, and obtain W_1', W_2', K_1', K_2'. (Refer to Table 7-6. "Hexadecimal notation-decimal notation conversion table".)
13) Calculate X_1' using the following equations (decimal notation calculation).
   $A'=W_2'+K_1'-W_1'-K_2'$ ··························Equation 1
   $B'=W_1'-K_1'$ ··Equation 2
   $X_1'=\frac{2048+(48\times A')-(16\times B')}{A'}$ ·················Equation 3
14) Convert X_1' to hexadecimal notation, and obtain X_1.
   (Round off to one decimal place)
15) Set data: X_1 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
16) Change the data of page: F, address: 09, and adjust the DDS display data to "33".
17) Press the PAUSE button of the adjusting remote control unit.
18) Set data: 03 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE mode setting)
19) Read the DDS display data, and set to W_0. If W_0 lies within the "B1" to "B5" range, perform "Processing after completing adjustments". If it lies outside the range, perform the following adjustments.
20) Convert W_0 to decimal notation, and obtain W_0'.
21) Calculate X_2' using the following equations (decimal notation calculation).
   $C'=W_0'-B'-51$ ······································Equation 4
   $X_2'=\frac{(128-B')\times(X_1'-48)+48\times C'}{C'}$ ···········Equation 5
   (X_1' and B' are values obtained from equations 2 and3)
22) Convert X_2' to hexadecimal notation and obtain X_2.
   (Round off to one decimal place)
23) Set data X_2 to page: F, address: 08, and press the PAUSE button of the adjusting remote control unit.
24) Change the data of page: F, address: 09, and adjust the DDS display data to "B3".
25) Press the PAUSE button of the adjusting remote control unit.
26) Set data: 01 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS OPEN mode setting)
27) Check that the DDS display data lies within the "31" to "35" range.

Processing after Completing Adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS NORMAL mode setting)

9. Flange Back Adjustment

Subject	Chart for flange back adjustment (1000 ± 5 mm from the front side of the lens Luminance: 300 ± 50 lux)
Measurement Point	Check the operations on the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	86 (WIDE LIMIT), 87 (WIDE LIMIT H), 88 (TELE LIMIT), 89 (TELE LIMIT H), 8A (STEP ZERO), 8B (STEP ZERO SPAN)

Adjusting method:

1) Turn the auto focus off.
2) Adjust the focus using the focus ring.
3) Check that the flange back adjustment chart center and the exposure display center coincide at both zoom lens TELE end and WIDE end.
4) Release the protect.
   Page: 6, address: 00, data: 01
5) Check that the data of page: 6, address: 09 is 00.
   (Flange back adjustment possible display)
6) Check that the page: F, address: 86 to 8B data is at the initial value. (Refer to Table 7-2. "Page F address list")
7) Set data: 01 to page: F, address: AC.
   (This causes automatic adjustment to be performed. Adjustments are performed at the zoom lens TELE end first, and then at the WIDE end. The adjustment data is automatically input to page: F, addresses: 86 to 8B.)
8) Check that the data of page: 6, address: 09 is 01.
   (Display indicating flange back adjustment completion)

Processing after completing adjustments

1) Set data: 00 to page: F, address: AC.
2) Turn off the main power supply (6.3V).

10. Flange Back Check

Subject	Siemens star (1m from the front of the lens)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Specified Value	$D_2=D_1 \pm 5$ $D_4=D_3 \pm 5$

Checking method:

1) Set data: 11 to page: 6, address: 00. (Camera adjustment (Window ON) mode)
2) Set data: B0 to page: 6, address: AF. (Focus step display mode)
3) Place the Siemens star 1m from the front of the lens.
4) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appears on the image.
5) Turn off the auto-focus.

- Checking the flange back at the center point of the zoom.

6) Shoot the Siemens star with the zoom TELE end.
7) Rotate the focus ring, and adjust the focus.
8) Adjust to the center point of the zoom.
   (Adjust to the center point by viewing the EVF zoom position.)
9) Read the focus step value (4 digits) displayed on the TV monitor, and take the value as D_1.
10) Rotate the focus ring, and adjust the focus.
    Read the focus step value here, and take the value as D_2.
11) Check that $D_2=D_1 \pm 5$.

- Checking the flange back at the zoom WIDE end.

12) Shoot the Siemens star at the zoom TELE end.
13) Rotate the focus ring, and adjust the focus.
14) Adjust to the zoom WIDE edge.
15) Read the focus step value displayed on the TV monitor, and take the value as D_3.
16) Rotate the focus ring, and adjust the focus.
    Read the focus step value here, and adjust to D_4.
17) Check that $D_4=D_3 \pm 5$.

Process after checking

1) Set data: 00 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.

11. SYNC Level Adjustment (CS-33 board)

Subject	Not required
Measurement Point	Pin ⑱ of CN701 (Y OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	06 (VREF-Y)
Specified Value	A=150 ± 5 mV

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE mode setting)
3) Change the data of page: F, address: 06, and adjust so that the SYNC level (A) becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of IRIS CLOSE mode)

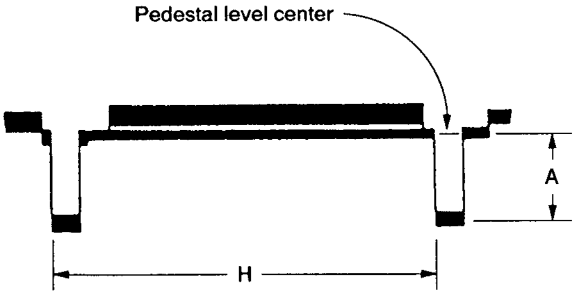


Fig. 7-8.

12. BURST Level Adjustment (CS-33 board)

Subject	Not required
Measurement Point	Pin ⑭ of CN701 (C OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	07 (VREF-C)
Specified Value	A=160 ± 5 mVp-p

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE mode setting)
3) Change the data of page: F, address: 07, and adjust so that the burst level (A) becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of IRIS CLOSE mode)

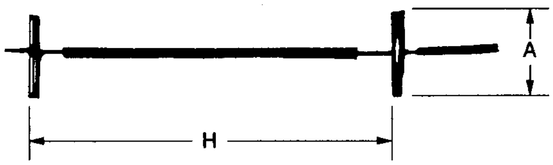


Fig. 7-9.

13. A/D Offset Adjustment

Subject	Not required
Measurement Point	DDS display on the EVF or the TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	0C (AD REF)
Specified Value	40 to 41

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE AGC MIN mode setting)
3) Set data: 00 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (Y sampling output mode setting)
4) Set data: 00 to page: F, address: 16, and press the PAUSE button of the adjusting remote control unit.
   (Sets the SET UP level to 0)
5) Set data: 35 to page: 1, address: E6.
   (Setting 1 of the sampling position)
6) Set data: 6D to page: 1, address: E7.
   (Setting 2 of the sampling position)
7) Change the data of page: F, address: 0C, and adjust the average value of the DDS display (the bottom two digits of the display data at the bottom right of the EVF or the TV monitor display) to 40 to 41.
   (Set the data of address 0C to the maximum value satisfying the specification.)
8) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: F, address: 16, and press the PAUSE button of the adjusting remote control unit.
   (Returns the SET UP level to the normal level.)
2) Turn the main power supply (6.3V) off.

14. Carrier Balance Adjustment

Subject	Not required
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	03 (CS SL)
Specified Value	The center of the black luminance point should lie within the 1 ϕ circle whose center is the principle point.

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01.
2) Set data: 05 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE, AGC MIN mode setting)
3) Change the data of page: F, address: 03, and adjust so that the center of the black luminance point coincides with the principle point.
4) Press the PAUSE button of the adjusting remote control unit.
5) Set data: 07 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS CLOSE, AGC MAX mode setting)
6) Confirm that the center of the black luminance point is within the circle shown in Fig. 7-10.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (IRIS NORMAL mode setting)

The center of the black luminance point should be within this circle

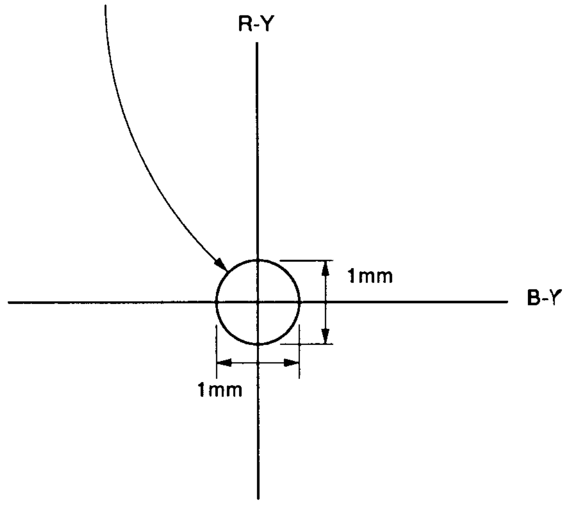


Fig. 7-10.

15. Picture Frame Setting

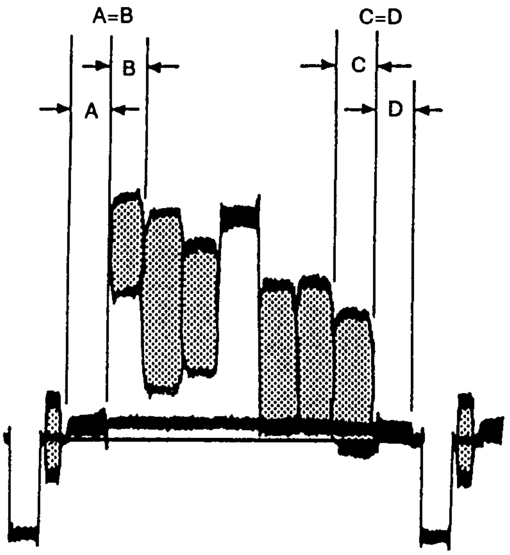
Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A=B, C=D, t=0 ± 0.1 msec

Setting method:

1) Turn the auto focus off.
2) Adjust the focus using the focus ring.
3) Adjust the zoom and the camera direction, and set to the specified position.
4) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "color bar chart standard picture frame" and "white pattern standard picture frame".

Check on the oscilloscope

1. horizontal period



2. Vertical period

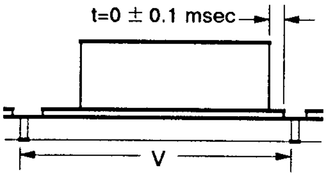


Fig. 7-11.

Check on the TV monitor

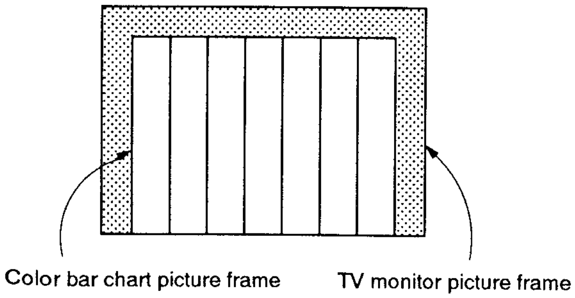


Fig. 7-12.

16. IRIS Level Adjustment (CS-33 board)

Subject	Color bar standard picture frame
Measurement Point	Pin ⑪ of CN701 (IRIS OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	63 (AGC MIN)
Specified Value	A=200 ± 5 mV

Adjusting method:

1) Release the protect.
   Page: 6, address: 00, data: 01
2) Change the data of page: F, address: 63, and adjust so that the IRIS OUT signal level (A) becomes the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

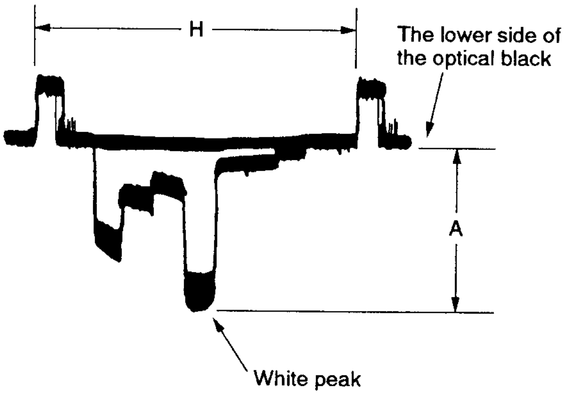


Fig. 7-13.

17. MAX GAIN Adjustment (CS-33 board)

Subject	Color bar standard picture frame
Filter	ND filter 1.0 (2 sheets) and 0.4 (1 sheet), 0.1 (1 sheet)
Measurement Point	Pin ⑱ of CN701 (CAM Y)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	64 (AE MIN L)
Specified Value	A=210 +5 mV, –15 mV

Adjusting method:

1) Place the ND filter 2.5 (1.0+1.0+0.4+0.1) on the lens.
2) Release the protect.
   Page: 6, address: 00, data: 01
3) Change the data of page: F, address: 64, and adjust so that the CAM Y signal level (A) becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.

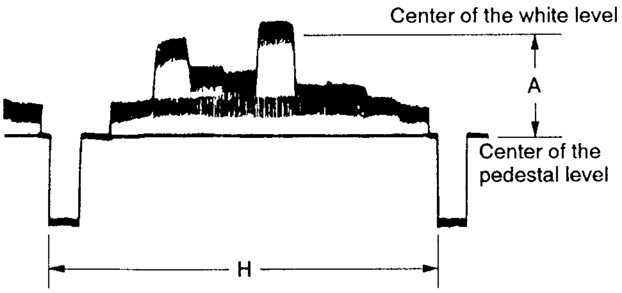


Fig. 7-14.

18. IRIS IN/OUT Adjustment

Subject	White pattern standard picture frame
Measurement Point	DDS display of the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	39 (AWB IRIS IN) 3A (AWB IRIS OUT)

Adjusting method:

1) Set data: 11 to page: 6, address: 00.
   (Camera adjustment mode (Window ON) setting)
2) Set data: 40 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (HALL data display)
3) Set data: 0B to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (ND0.8 shutter mode setting)
4) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the TV monitor), and set to D39.
5) Set data: D39 to page: F, address: 39, and press the PAUSE button of the adjusting remote control unit.
6) Set data: 09 to page 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (ND0.5 shutter mode setting)
7) Read the DDS display data and set to D3A.
8) Set data: D3A to page: F, address: 3A, and press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of the ND0.8 shutter mode)

19. Pre-white Balance Adjustment

Subject	White pattern standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	33 (R CONT REF), 34 (B CONT REF)
Specified Value	The center of the white luminance point should lie within the circle with a diameter of 1mm and whose center is the principle point

Adjusting method:

1) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (WB 3200K preset mode setting)
2) Set data: 11 to page: 6, address: 00.
   (Camera adjustment mode (Window ON) setting)
3) Change the data of addresses:33 and 34 of page: F alternately, and coincide the white luminance point to the principle point.
   Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the addresses.
   If not, the new data will not written to the memory.
4) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Release of the preset mode)
2) Set data: 10 to page: 6, address: 00.
   (Protect mode setting)

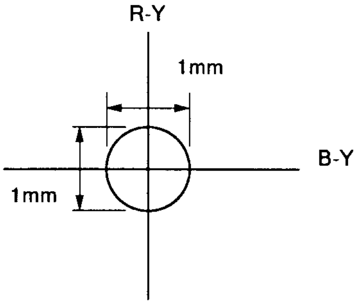


Fig. 7-15.

20. Color Reproduction Adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	18 (CORE B-Y GAIN), 19 (CORE R-Y GAIN), 1A (CORE R-Y HUE), 1B (CORE B-Y HUE)
Specified Value	All color luminance points should settle within each color reproduction frame.

Adjusting method:

1) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Indoor white balance mode setting)
2) Set data: 01 to page: 6, address: 00.
   (Camera adjustment mode (Window OFF) setting)
3) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
4) Change the data of addresses 18 to 1B of page: F, and settle each color luminance point in each color reproduction frame.
   Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the addresses.
   If not, the new data will not be written to the memory.
5) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: 6, address: 01.
   (Release of the adjustment mode)
2) Set data: 10 to page: 6, address: 00.
   (Protect mode setting)

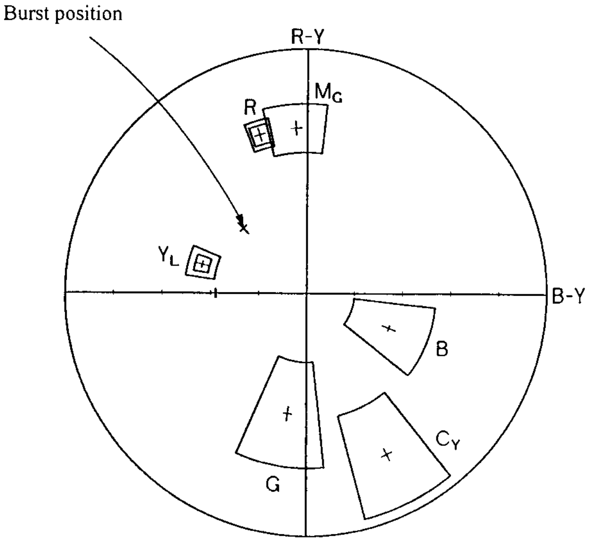


Fig. 7-16.

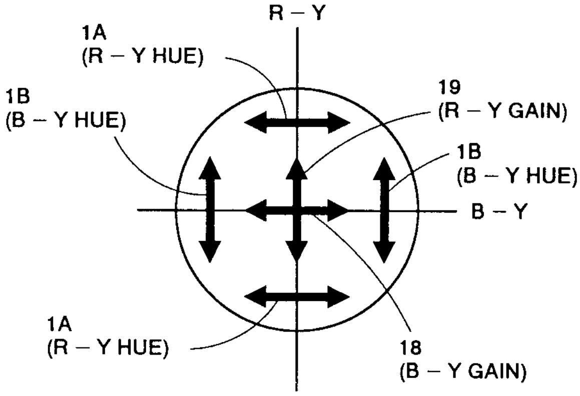


Fig. 7-17. Direction of the Movements of the Adjustment Address and Luminance Point

21. Auto White Balance Preset Adjustment

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	2D (R REF L), 2E (R REF H), 2F (G REF L), 30 (G REF H), 31 (B REF L), 32 (B REF H)

Adjusting method:
1) Turn the power of the unit OFF/ON.
2) Check that the data of page: 6, address: 09 is 00.
(Auto white balance preset adjustment possible display)
3) Set data: 11 to page: 6, address: 00.
(Camera adjustment mode (Window ON) setting)
5) Set data: 11 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(3200K preset data take in preparation mode)
6) Set data: 0D to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(When the 3200K preset data is taken in, the data will be automatically input to addresses 2D to 32 of page F.)
7) Check that the data of page: 6, address: 09 is 01.
(Auto white balance preset adjustment completion display)

Processing after completing adjustments
1) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
(Release of the auto white balance preset mode)
2) Set data: 10 to page: 6, address: 00.
(Release of camera adjustment mode)

22. Auto White Balance Adjustment

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	35 (AWB NORM R) 36 (AWB NORM B)
Specified Value	R ratio 2A80 ± 40 B ratio 5E80 ± 40

Note: Check that "Auto white balance preset adjustment" has been completed.

Adjusting method:
1) Set data: 11 to page: 6, address: 00.
(Camera adjustment mode (Window ON) setting)
2) Set data: D0 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
(Auto white balance adjustment mode setting)
3) Set data: 82 to page: F, address: AF.
(R ratio display mode setting)
4) Change the data of page: F, address: 35, and adjust the average value of the DDS display data (the display data at the bottom right of the EVF or the TV monitor) to 2A80 ± 40.
5) Press the PAUSE button of the adjusting remote control unit.
6) Set data: 83 to page: F, address: AF.
(B ratio display mode setting)
7) Change the data of page: F, address: 36, and adjust the average value of the DDS display data to 5E80 ± 40.
8) Press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments
1) Set data: 00 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
(Release of the white balance adjustment mode)
2) Set data: 10 to page: 6, address: 00.
(Release of camera adjustment mode)

23. White Balance Check

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 7-18. A to C

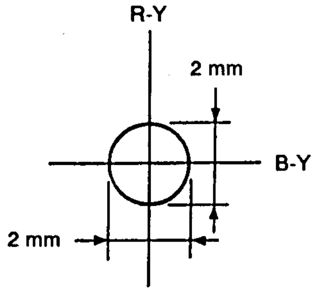


Fig. 7-18. A

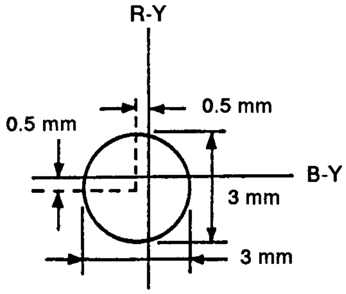


Fig. 7-18. B

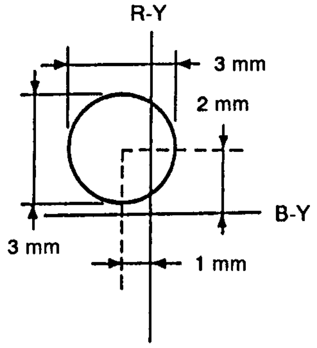


Fig. 7-18. C

Checking method:

1) Check that the lens is not covered with either filter.
2) Set data: 11 to page: 6, address: 00.
   (Camera adjustment mode (Window ON) setting)
3) Set data: 0F to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Indoor white balance mode setting)
4) Check that the center of the white luminance point is within the circle shown in Fig. 7-18.A.
   (Indoor white balance check)
5) Set data: 00 to page: 6, address: 01, and press the PAUSE button of the adjusting remote control unit.
   (Auto white balance mode setting)
6) Set data: 01 to page: F, address: 5C, and press the PAUSE button of the adjusting remote control unit.
   (Auto white balance high speed tracking mode setting)
7) Set data: 91 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (R, B ratio (M) display mode setting)
8) Check that the top 2 digits and the bottom 2 digits of the DDS display are 3D to 43.
9) Check that the center of the white luminance point is within the circle shown in Fig. 7-18. A.
10) Place the C14 filter on the lens.
11) Check that the center of the white luminance point settles in the circle shown in Fig. 7-18. B.
    (Auto white balance outdoor mode check)
12) Remove the C14 filter, and place the ND filter 1.3 (1.0+0.3) on the lens.
13) Check that the center of the white luminance point settles in the circle shown in Fig. 7-18. C.
    (Auto white balance outdoor mode check)

Processing after completing adjustments

1) Set data: 0A to page: F, address: 5C, and press the PAUSE button of the adjusting remote control unit.
   (Release of the auto white balance fast tracking mode)
2) Set data: 00 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (Release of the R, B ratio (M) display mode)
3) Set data: 10 to page: 6, address: 00.
   (Release of camera adjustment mode)

24. Linear Matrix Adjustment

Subject	Color bar standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3D (DMAT HUE) 3E (DMAT GAIN)

Note 1: Check that position that was set in the color bar chart picture frame "15. Picture Frame Setting" is maintained, before beginning adjustments.

Adjusting method:

1) Remove the filter C14 for color temperature correction.
2) Release the protect.
   Page: 6, address: 00, data: 01
3) Color bar data sampling mode setting
   1. Check that the data of page: 6, address: 01 is 00.
   2. Set data: F1 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
   3. Set data: 3A to page: F, address: 14, and press the PAUSE button of the adjusting remote control unit.
   (Check that the colors on the monitor display at the color modulation stop mode have disappeared)
4) Specifying the Yellow position
   1. Set data: A5 to page: 1, address: E6.
   2. Set data: B6 to page: 1, address: E7.
5) Set data: 03 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (R–Y•B–Y data display mode setting)
6) Read the average value of the DDS display R–Y data (Note 2), and set to Y_1.
7) Specifying the Red position
   1. Set data: 5B to page: 1, address: E6.
   2. Set data: 6D to page: 1, address: E7.
8) Read the average value of the DDS display B–Y data (Note 2), and set to R_1.
9) Place the filter C14 for color temperature correction on the lens. (Ensure that the picture frame of the chart does not shift at this time.)
10) Specifying the yellow position.
    1. Set data: A5 to page: 1, address: E6.
    2. Set data: B6 to page: 1, address: E7.
11) Read the average value of the DDS display R–Y data (Note 2), and set to Y_2.
12) Convert Y_1, R_1, Y_2 to decimal notation to obtain Y_1', R_1' and Y_2'.
    (Refer to Table 7-6. "Hexadecimal notation-decimal notation conversion table")
13) Calculate X_1' from the following equation (decimal notation calculation).
    $X_1' = Y_2' - Y_1'$
14) Calculate D3D from the following table
    (D3D is hexadecimal notation)

X_1' value	**D3D**
$-1 \leqq X_1' \leqq 1$	F0
$X_1' > 1$	F1
$X_1' < -1$	FF

15) Set data: D3D to page: F, address: 3D, and press the PAUSE button of the adjusting remote control unit.
16) Specifying the Red position
    1. Set data: 5B to page: 1, address: E6.
    2. Set data: 6D to page: 1, address: E7.
17) Read the average value of the DDS display B–Y data (Note 2), and set to R_2.
18) Convert R_2 to decimal notation to obtain R_2'.
19) Calculate X_2' from the following equation (decimal notation calculation).
    $X_2' = R_2' - R_1'$
20) Calculate D3E from the following table.

X_2' value	**D3E**
$X_2' \geqq 0$	00
$0 > X_2' \geqq -1$	01
$-1 > X_2'$	02

21) Set data: D3E to page: F, address: 3E, and press the PAUSE button of the adjusting remote control unit.

Processing after completing adjustments

1) Set data: 00 to page: F, address: 60, and press the PAUSE button of the adjusting remote control unit.
   (Release of the sampling mode)
2) Set data: 38 to page: F, address: 14, and press the PAUSE button of the adjusting remote control unit.
   (Color modulation ON mode setting)
3) Set data: 00 to page: F, address: AF, and press the PAUSE button of the adjusting remote control unit.
   (Release of the R–Y•B–Y data display mode)
4) Turn the main power supply (6.3V) off.

Note 2: As the R–Y data and B–Y data are displayed alternatively, it will be difficult to distinguish between the R–Y data and the B–Y data.

Record this data on a tape, and perform frame advancing playback so that only the R–Y data or the B–Y data is read.

(Example)

If the frame advancing playback is performed, the following will be displayed.

$$63\underline{88} \rightarrow \underline{8B}61 \rightarrow 61\underline{8B} \rightarrow \underline{8A}63 \rightarrow$$
$$65\underline{89} \rightarrow \underline{8B}60 \rightarrow 60\underline{8A} \rightarrow \underline{89}63$$

As the R–Y data is above 80, and the B–Y data is below 7F, the data which is underlined is the R–Y data. If the average value is calculated, the R–Y data will become 8A and the B–Y data will becames 62.

25. Title Color Reproduction Adjustment

Subject	All black (Cover the lens with a black cap)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	D
Adjustment Address	14 (BLU R–Y), 15 (BLU B–Y), 16 (GRN R–Y), 17 (GRN B–Y), 18 (CYN R–Y), 19 (CYN B–Y), 1A (RED R–Y), 1B (RED B–Y), 1C (VIO R–Y), 1D (VIO B–Y), 1E (YEL R–Y), 1F (YEL B–Y)
Specified Value	Each title color luminance point should settle within each color reproduction frame.

Note: For details on the page D address list, refer to "Service mode" in "Video Section Adjustments".

Adjusting method:

1) Press the superimpose button "memory".
2) Use the "color/mode" button to change the title color to "blue".
3) Release the protect of page D.
   Page: 1, address: 00, data: 01
4) Change the data of addresses 14 and 15 of page D, and settle the blue luminance points within the blue (B) color reproduction frame.
   Note: Be sure to press the PAUSE button of the adjusting remote control unit before changing the address. If not, the new data will not be written to the memory.
5) Adjust for green (addresses 16, 17), cyan (addresses 18, 19), red (addresses 1A, 1B), violet (addresses 1C, 1D) and yellow (addresses 1E, 1F) in the same way.

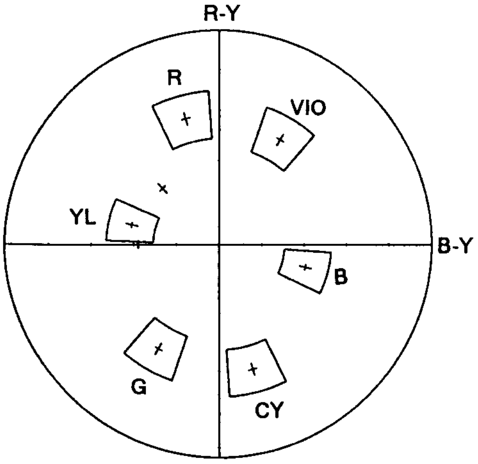


Fig. 7-19.

26. VIDEO OUT Level Check

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal (Terminated at 75 Ω)
Measuring Instrument	Oscilloscope
Specified Value	Y level=660 ± 40 mV SYNC level=300 ± 20 mV BURST level=300 ± 30 mV

Checking method:

1) Check that the Y level, SYNC level and BURST level satisfy the specified values.

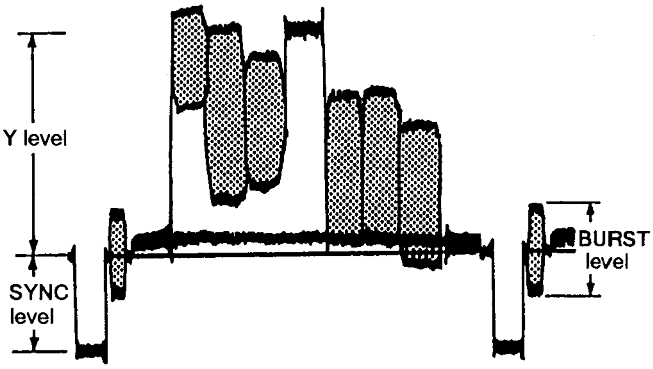


Fig. 7-20.

7-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT (VF-44 BOARD)

7-3-1. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSE) Monoscope portion
Specified Value	See Fig. 7-22.

Adjustment method:

1) Adjust RV503 (BRIGHT) for appropriate brightness on CRT screen.
2) Loosen the DY (deflection yoke) tightening nut. (See Fig. 7-21.)
3) Make a picture horizontal by turning the DY.
4) Retighten the nut. (Do not tighten excessively.)

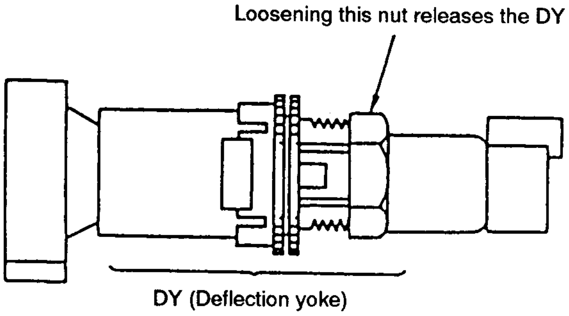
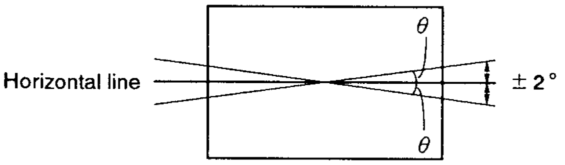


Fig. 7-21.



Specified value: Image orientation within ± 2 ° of horizontal line.

Fig. 7-22.

7-3-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSE) Monoscope portion
Specified Value	See Fig. 7-24.

Adjustment method:

1) Turn the centering adjustment rings to provide an image with even right, left, upper and lower margins. (See Fig. 7-23.)

Note: Since the centering position is affected by the earth magnetism, turn the equipment over 360 ° horizontally, and make adjustments at the orientation which exhibits median displacements of the image.

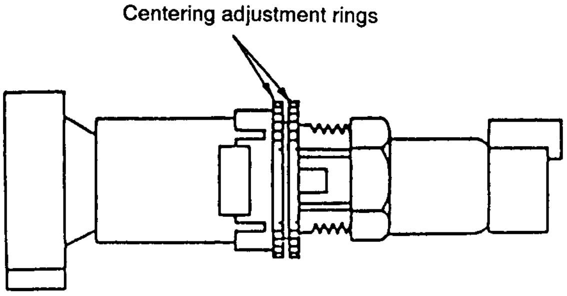


Fig. 7-23.

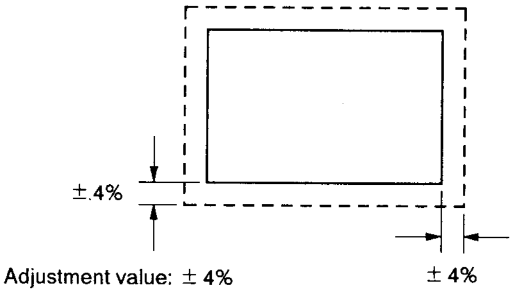


Fig. 7-24.

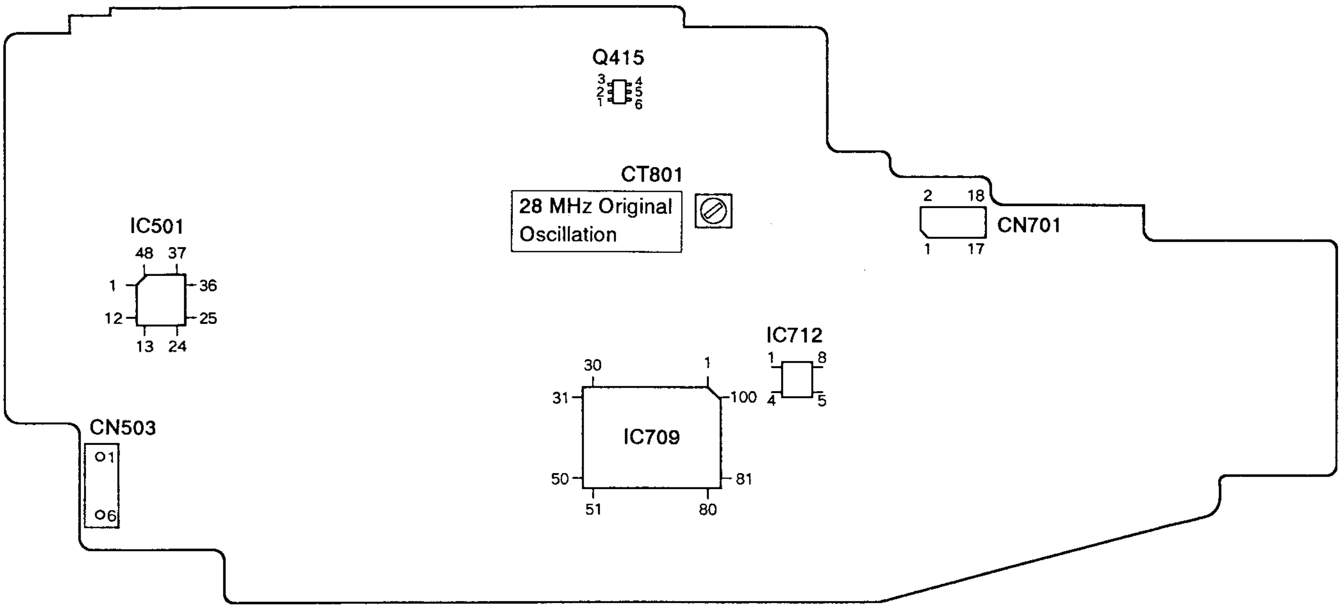
7-3-3. AFC Adjustment (VF-44 Board)

Mode	E-E or Camera standby
Signal	Color bar
Measurement Point	C517 ⊕ side
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment Element	RV504 (AFC)
Specified Value	2.30 ± 0.05 Vdc

Adjustment method:

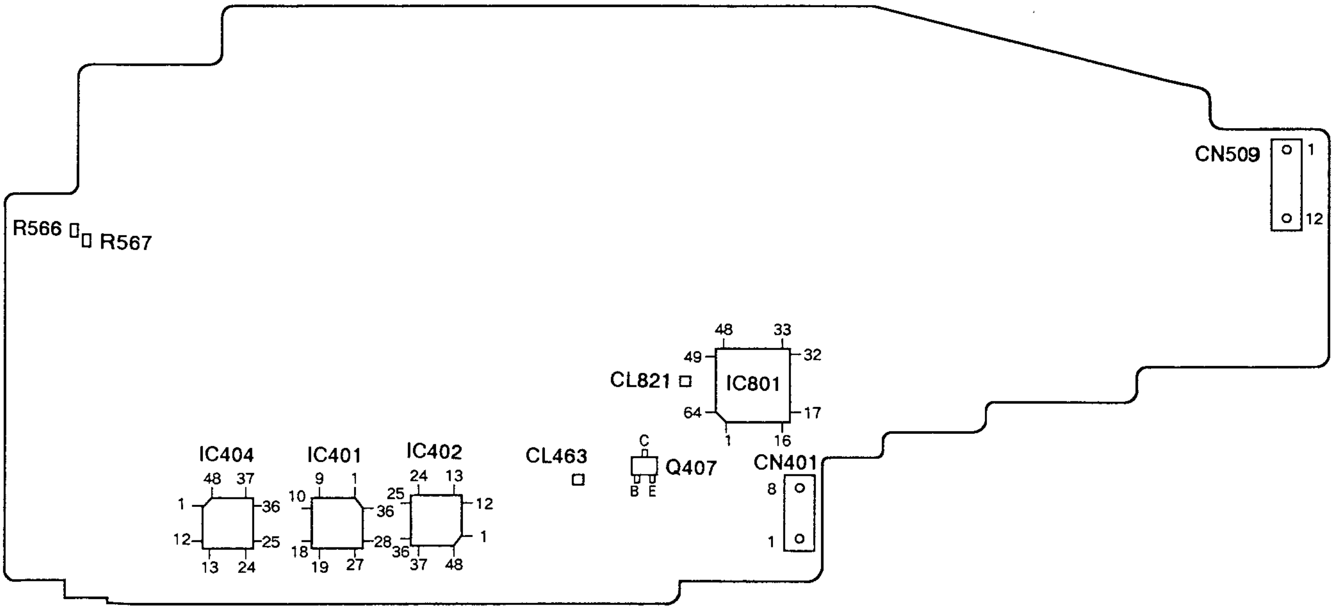
1) Adjust RV504 (AFC) for 2.30 ± 0.05 Vdc.

CS-33 BOARD (COMPONENT SIDE)



Q415
3
2
1
4
5
6
CT801
28 MHz Original
Oscillation
CN701
2
18
1
17
IC501
48 37
1
36
12
25
13 24
IC712
1
8
4
5
IC709
30
1
31
100
50
81
51
80
CN503
1
6

CS-33 BOARD (CONDUCTOR SIDE)



CN509
1
12
R566
R567
IC801
48 33
49
32
64
17
1 16
CL821
CL463
Q407
C
B E
CN401
8
1
IC404
48 37
1
36
12
25
13 24
IC401
9 1
10
36
18
28
19 27
IC402
24 13
25
12
36
1
37 48

SECTION 8
MECHANICAL SECTION ADJUSTMENTS

For Mechanical Adjustments

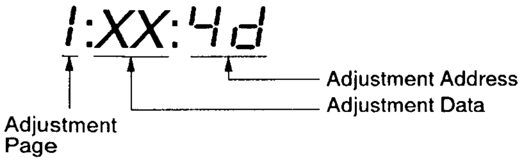
Refer to the separate volume of mechanical adjustment "8 mm Video MECHANICAL ADJUSTMENT MANUAL Ⅳ (A Mechanism)" for the adjustments and checks of mechanism section and the mechanical parts replacement. (9-973-199-11)
For setting of the track shift mode, however, refer to the following.

8-1. SETTING THE TRACK SHIFT MODE

Note: Camera part and video part should have been installed.

[Setting Method]

1) Set the adjustment commander to the HOLD ON side.
2) Set page: 1, address: 01 and data: 01, and then release the protector.
3) Set page: D and address: 01.
4) Set adjustment data to 03 (test mode 3) by PLAY or STOP button.
   (When HOLD OFF once after the setting and HOLD ON again, the display of the address data will be changed. To set the another mode with shifting, repeat the procedures from 3).)
5) Set to the HOLD OFF side in order to set the normal mode.



8-2. PREPARATION FOR ADJUSTMENT

1) Clean the tape running surfaces (tape guides, drum, capstan shaft, pinch roller.)
2) Connect to the oscilloscope.
   CH1: CS-33 board CN503 pin ③ (PB RF)
   CH2: CS-33 board CN503 pin ④ (SWP)
3) Play back the tracking alignment tape (WR5-1CP: 8-967-995-07).
4) Check that the RF waveform of the oscilloscope is flat at both inlet and outlet sides. (Refer to Fig. 8-1 and 8-2)
   If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment Ⅳ (A Mechanism).

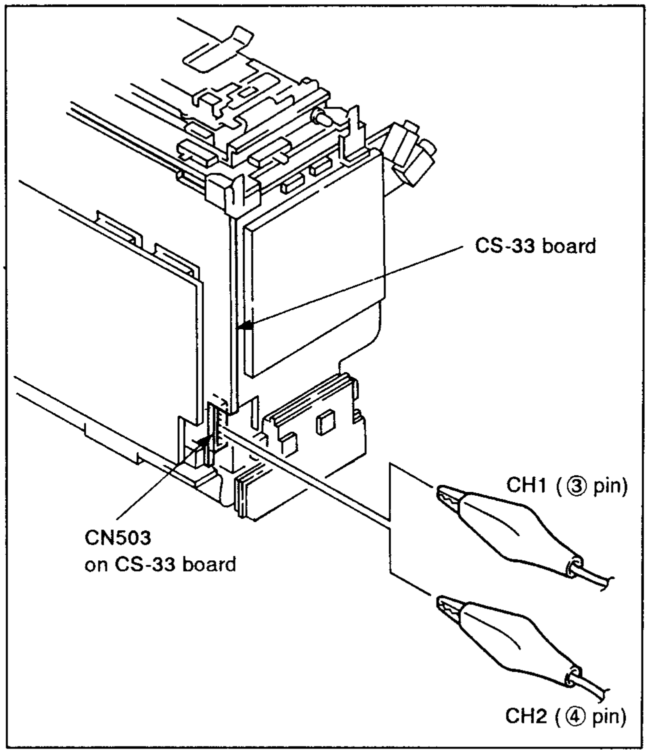


Fig.8-1.

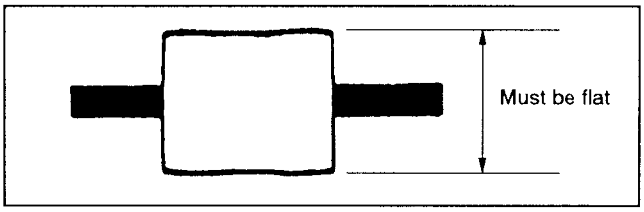


Fig.8-2.

8-3. MECHANISM CONTROL COMPUTER VERSION

Ver.	Ref No.	Parts Name	Parts No.
Ver 1	IC503	CXP80624A-016Q	8-752-842-05

8-4. MODE CONTROL COMPUTER VERSION

Ver.	Ref No.	Parts Name	Parts No.
Ver 1	IC506	uPD75316GF-355-3B9	8-759-167-61

SECTION 9
VIDEO SECTION ADJUSTMENT

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 284.

9-1. PREPARATIONS BEFORE ADJUSTMENT

The following adjusting instruments are used for adjusting the video section.

9-1-1. Equipments to be used

1) TV monitor
2) Oscilloscope: 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuater
10) Regulated power supply
11) Alignment tape
    - For tracking adjustment (WR5-1CP)
      Part Code: 8-967-995-07
    - For normal mode video frequency characteristics adjustment (WR5-6C)
      Part Code: 8-967-995-17
    - For Hi8 mode video frequency characteristics adjustment (WR5-7CE)
      Part Code: 8-967-995-18
    - For checking normal mode operations
      For SP (WR5-5CSP)
      Part Code: 8-967-995-47
      Or (WR5-4CSP)
      Part Code: 8-967-995-46
      For LP (WR5-4CL)
      Part Code: 8-967-995-56
      For checking AFM stereo operations (WR5-9CS)
      Part Code: 8-967-995-28
    - For checking Hi8 mode operations (ME tape)
      For SP (WR5-8CSE)
      Part Code: 8-967-995-48
      For LP (WR5-8CLE)
      Part Code: 8-967-995-57
12) Remote control unit for adjustment (J-6082-053-A)
13) VI-113 board extension cord (28P, 0.8 mm)
    Part Code: J-6082-174-A
14) VI-113 board extension cord (40P, 0.8 mm)
    Part Code: J-6082-168-A
15) VI-113 board extension cord (12P, 0.5 mm)
    Part Code: J-6082-185-A
16) RP-138 board extension cord (19P, 0.8 mm)
    Part Code: J-6082-183-A
17) PS-298 board extension cord (28P, 0.8 mm)
    Part Code: J-6082-186-A

9-1-2. Precautions upon adjustment

The MA-131 board (Mic amplifier) is not required for adjusting the video section. Disconnect CN401 (8 pins) on CS-33 board.

- Remove the following connector if the focus ring gets in the way.
  1. CN852 of CS-33 board (8 pins)

- Remove the two lens block installing screws and the following connectors if the lens block gets in the way.
  1. CN801 of the CS-33 board (18 pins)
  2. CN851 of the CS-33 board (21 pins)
  3. CN902 of the CD-78 board (5 pins)

- Use an extension cable when opening the VI-113 board.
  1. Between CN002 of VI-113 board and CN507 of CS-33 board.
     40 pins, 0.8 mm pitch extension cable (J-6082-168-A)
  2. Between CN001 of VI-113 board and CN506 of CS-33 board.
     28 pins, 0.8 mm pitch extension cable (J-6082-174-A)
  3. Between CN003 of VI-113 board and CN509 of CS-33 board.
     12 pins, 0.5 mm pitch extension cable (J-6082-185-A)

- Use extension cables when opening the PS-298 board.
  1. Between CN505 of CS-33 board and CN950 of PS-298 board.
  2. Between CN504 of CS-33 board and CN951 of PS-298 board.
     28 pins, 0.8 mm pitch extension cable (J-6082-186-A), 2 used.

- Use an extension cable when opening the RP-138 board.
  1. Between CN501 of CS-33 board and W902 of RP-138 board.
     19 pins, 0.8 mm pitch extension cable (J-6082-183-A)

- If cabinet (R) gets in the way, remove the following connectors.
  1. CN512 of the CS-33 board (40 pins)

[How to set the forced POWER ON mode]

1. Release the protect of page D with the adjusting remote control unit.
   Page: 1, Address: 00, Data: 01
2. Select address 21 of page D.
3. When the power is turned on in the VTR mode, set data 02. (Set data 01 when the power is turned on in the CAMERA mode.)
4. Press the PAUSE button of the adjusting remote control unit.
5. Disconnect the main power supply (6.3V).

The forced POWER ON mode has been set by the above operations. Hereafter, when the main power is supplied, the power will turn on in the VTR mode (or CAMERA mode). As the position of the power supply switch (CAMERA/OFF/VTR (or PLAYER)) and the presence/absence of the power supply switch becomes unrelated, VK-23 board can be removed.
Be sure to release the forced POWER ON mode after completing repair/adjustment.

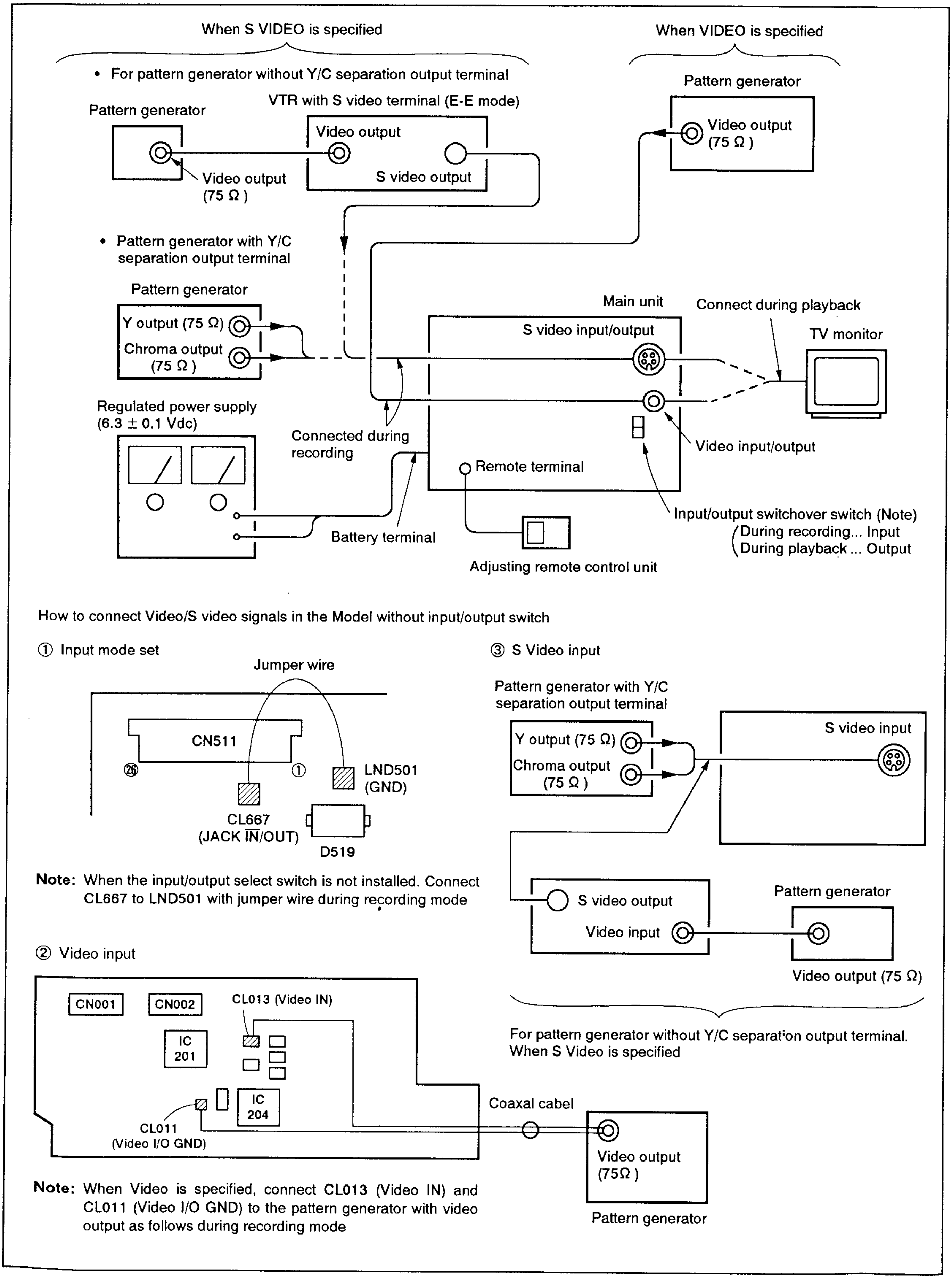
[How to release the forced POWER ON mode]

1. Release the protect of page D.
   Page: 1, Address: 00, Data: 01
2. Select address 21 of page D, and set data: 00.
   (Forced POWER ON mode releasing)
3. Press the PAUSE button of the adjusting remote control unit.

9-1-3. Connecting the Equipments

Connect the measuring instruments as shown in Fig. 9-1 according to the input terminal specifications (S VIDEO or VIDEO), adjust the power supply switch (CAMERA/OFF/VTR (or PLAYER)) (VK-23 board S548) to the "VTR (or PLAYER)" position, and perform the adjustments.
The input terminal is specified in the ( ) in the signal column. Either input terminal can be used when there are no specifications. However, the S video input terminal will have the priority. When adjusting with the video input terminal input, disconnect the connector from the S video input terminal.

Note: If the VIDEO input is used for adjustments which specify for the S VIDEO input to be used, the product specifications of the unit may not be satisfied in some cases. Be sure to perform according to the specifications.
When adjustments are performed with the S video output terminal VTR as the signal source, the efficiencies of the unit may be affected by the VTR. It is recommended that a pattern generator with a Y/C separation output terminal be used as much as possible.


When S VIDEO is specified
• For pattern generator without Y/C separation output terminal
Pattern generator
VTR with S video terminal (E-E mode)
Video output
Video output
(75 Ω)
S video output
• Pattern generator with Y/C separation output terminal
Pattern generator
Y output (75 Ω)
Chroma output
(75 Ω)
Regulated power supply
(6.3 ± 0.1 Vdc)
Connected during recording
Battery terminal
When VIDEO is specified
Pattern generator
Video output
(75 Ω)
Main unit
Connect during playback
S video input/output
TV monitor
Video input/output
Remote terminal
Input/output switchover switch (Note)
During recording... Input
During playback ... Output
Adjusting remote control unit
How to connect Video/S video signals in the Model without input/output switch
① Input mode set
Jumper wire
CN511
㉖
①
LND501
(GND)
CL667
(JACK IN/OUT)
D519
② Video input
CN001
CN002
CL013 (Video IN)
IC
201
IC
204
CL011
(Video I/O GND)
Coaxal cabel
Video output
(75Ω)
Pattern generator
③ S Video input
Pattern generator with Y/C separation output terminal
Y output (75 Ω)
Chroma output
(75 Ω)
S video input
S video output
Video input
Pattern generator
Video output (75 Ω)
For pattern generator without Y/C separation output terminal.
When S Video is specified

Note: When the input/output select switch is not installed. Connect CL667 to LND501 with jumper wire during recording mode

Note: When Video is specified, connect CL013 (Video IN) and CL011 (Video I/O GND) to the pattern generator with video output as follows during recording mode

Fig. 9-1.

9-1-4. Checking the Input Signals

As the video signal obtained from the pattern generator is used as the adjusting signal for adjusting the VTR section, this video output signal must be within the given specifications.

1. For S VIDEO Input

Connect the oscilloscope to the Y signal terminal of the S video input/output terminal, and check that the sync signal of the Y signal is approximately 0.3 Vp-p and that the amplitude of the video section is approximately 0.7 Vp-p. (When the VTR with a S video output terminal is used, check that the chroma signal and burst signal have not remained as well.) Connect the oscilloscope to the chroma signal terminal of the S VIDEO IN terminal, and check that the burst signal amplitude of the chroma signal is approximately 0.3 Vp-p and flat, and that the amplitude ratio of the burst signal to the chroma signal is 0.30: 0.66. The Y and chroma signals used in the adjustment are shown in Fig. 9-2.

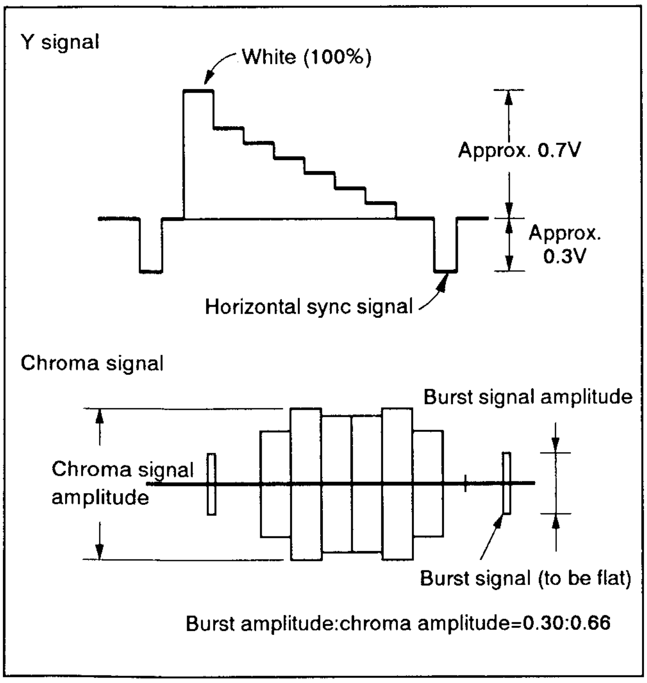

Y signal
White (100%)
Approx. 0.7V
Approx. 0.3V
Horizontal sync signal
Chroma signal
Burst signal amplitude
Chroma signal amplitude
Burst signal (to be flat)
Burst amplitude:chroma amplitude=0.30:0.66

Fig. 9-2. Color Bar Signal of the Pattern Generator

2. For VIDEO Input

Connect the oscilloscope to the video input/output terminal, and check that the amplitude of the sync signal of the video signal is approximately 0.3V, the amplitude of the video section is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and flat, and that the level ratio of the burst signal and the [red] signal is 0.30: 0.66.

The video signal (color bar) used for electric adjustments of the VTR section is shown in Fig. 9-3.

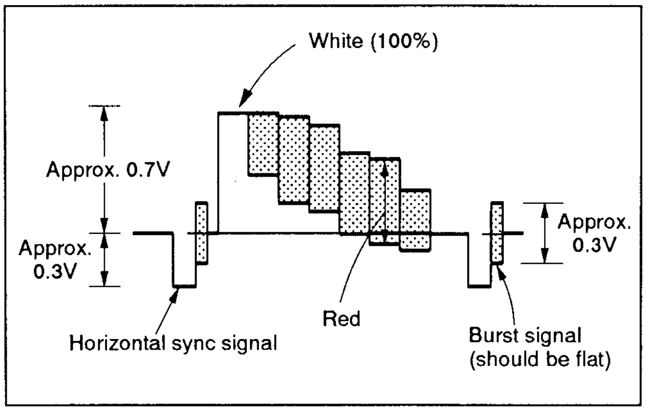

White (100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal sync signal
Burst signal (should be flat)

Fig. 9-3. Color bar signal of pattern generator

9-1-5. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment.

If the type of tape to be used for checking operations is not specified, use whichever type.

Name	Record-ing mode	Tape type	Tape speed	Recording contents		Usage
				Video area	PCM area	
Tracking WR5-1CP	L	MP	SP	CH2: Signal for 1 MHz tape path adjustment		Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	E	ME	LP	RF sweep 0 to 15 MHz Marker 2, 4.5, 7, 8.5, 10 MHz		Frequency characteristics adjustment
Video frequency characteristics WR5-2C	L	MP	LP	RF sweep Marker 1, 3.58, 5.5, 7 MHz		
Operation check (SP mode) WR5-5CSP	L	MP	SP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) 400 Hz 60% modulation	• Audio signal (PCM) Monoscope section 20 Hz 20 sec. 400 Hz 20 sec. } Repeated 4 times 14 kHz 20 sec. Color bar section 1 kHz 4 minutes	Checking operations
Operation check WR5-8CSE	E	ME	SP		• Audio signal (PCM) 400 Hz	
Operation check WR5-4CL	L	MP	LP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) 400 Hz 60% modulation		
Operation check WR5-8CLE	E	ME	LP		• Audio signal (PCM) 400 Hz	
AFM stereo Operation check WR5-9CS	L	MP	SP	• Video signal Color bar 4 minutes Monoscope 4 minutes • Audio signal (AFM) Stereo section (color bar) Lch: 400 Hz, Rch: 1 kHz (L+R: 1.5 MHz ± 60 kHz DEV L–R: 1.7 MHz ± 30 kHz DEV) Bilingual section (Monoscope) MAIN: 400 Hz (1.5 MHz ± 60 kHz DEV) SUB: 1 kHz (1.7 MHz ± 30 kHz DEV)	• Audio signal (PCM) 400 Hz 8 minutes	AFM stereo Checking operations

Note: Recording mode

L ·············· Normal (Original) mode
E ·············· hi8 (hi band) mode

Tape type

MP············ Particle type metal tape
ME············ Evaporated type metal tape

Table 9-1.

Fig. 9-4. shows the 75% color bar signals recorded on the alignment tape.

Note: Measure using the video input/output terminal (Terminated at 75 Ω)

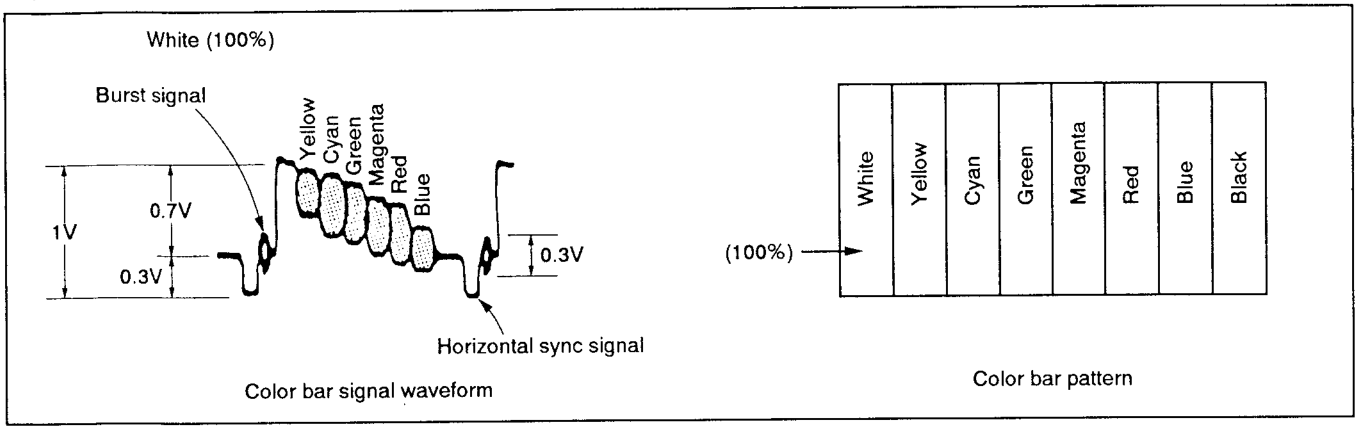

White (100%)
Burst signal
Yellow
Cyan
Green
Magenta
Red
Blue
1V
0.7V
0.3V
0.3V
Horizontal sync signal
Color bar signal waveform
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black
(100%)
Color bar pattern

Fig. 9-4. Alignment tape color bar signal

9-1-6. Input/Output Level and Impedance

1. E, Australian model

Video input	Pin jack Input signal: 1 Vp-p, 75Ω unbalanced, sync negative
Video output	Pin jack Output signal: 1 Vp-p, 75Ω unbalanced, sync negative
S video input	Four pins mini DIN Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative Color signal: 0.3 Vp-p, 75Ω unbalanced
S video output	Four pins mini DIN Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative Color signal: 0.3 Vp-p, 75Ω unbalanced
Audio input	Pin jack Input level: –7.5 dBs (0 dBs=0.775 Vrms) Input impedance: Above 47 kΩ
Audio output	Pin jack Specified output: –7.5 dBs Output impedance: Below 2.2 kΩ

2. AEP, UK model

Video output	Pin jack Output signal: 1 Vp-p, 75Ω unbalanced, sync negative
S video output	Four pins mini DIN Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative Color signal: 0.3 Vp-p, 75Ω unbalanced
Audio output	Pin jack Specified output: –7.5 dBs Output impedance: Below 2.2 kΩ

9-1-7. Record Mode (Normal/Hi8) Switchover

The record mode (Normal/Hi8) of this unit is switched as shown in the following table. The playback mode (Normal/Hi8) is switched automatically according to the record mode of the tape played back.

Hi8 Switch (EJ-26 board S705)	Tape Used	Record Mode
Auto	ME	Hi8
	Hi8 MP	
	MP	Normal
Off	ME	Normal
	Hi8 MP	
	MP	

Table 9-2.

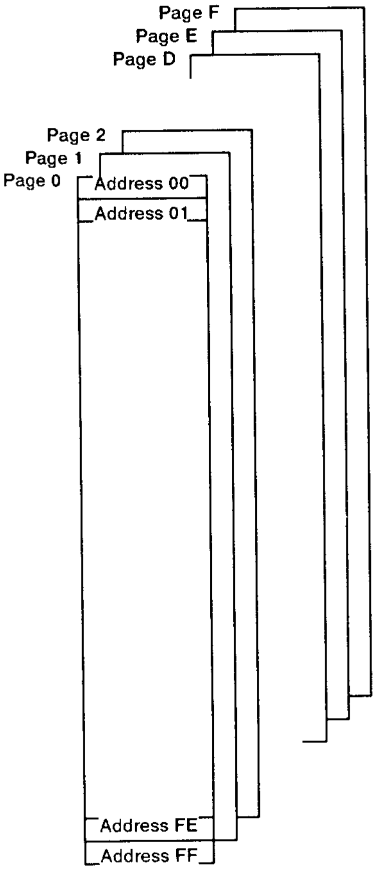
9-1-8. Service Mode

1. Setting the Service mode

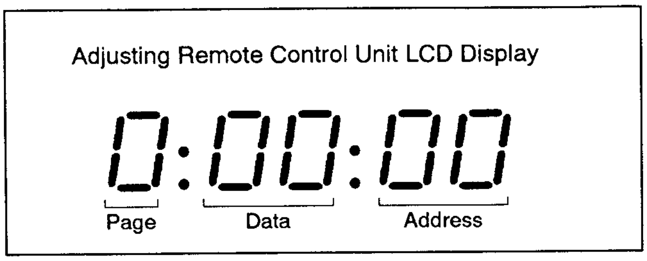
The service mode consists of the adjustment mode which adjusts the EVR and the test mode which displays the condition of the unit.

The unit can be shifted into the test mode and adjustment mode by connecting the adjusting remote control unit (set the HOLD switch to the HOLD side).

(1) Service LANC memory map

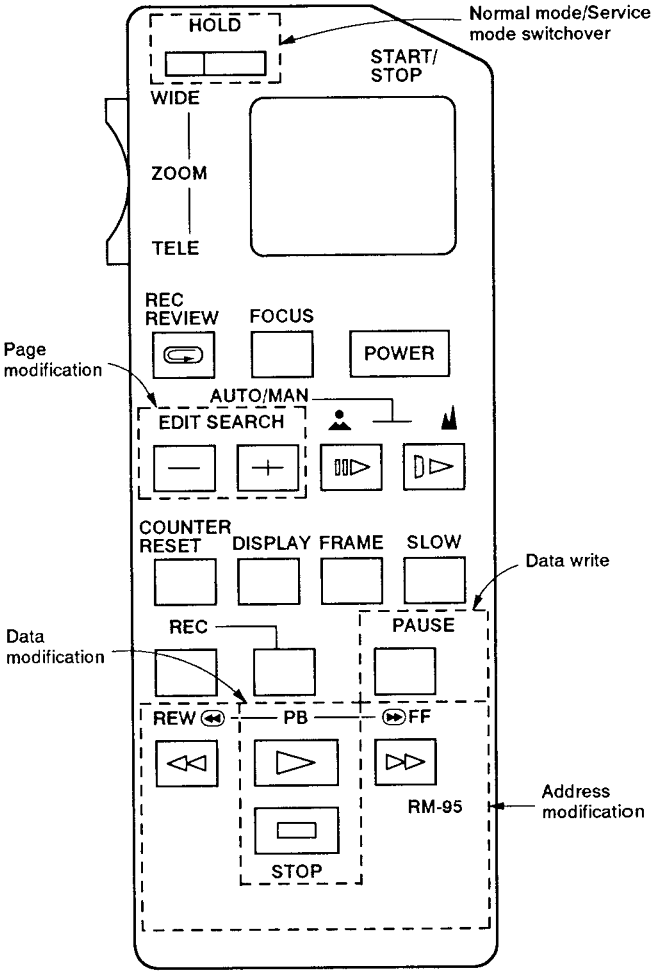


Page F
Page E
Page D
Page 2
Page 1
Page 0
Address 00
Address 01
Address FE
Address FF



Adjusting Remote Control Unit LCD Display
0:00:00
Page
Data
Address

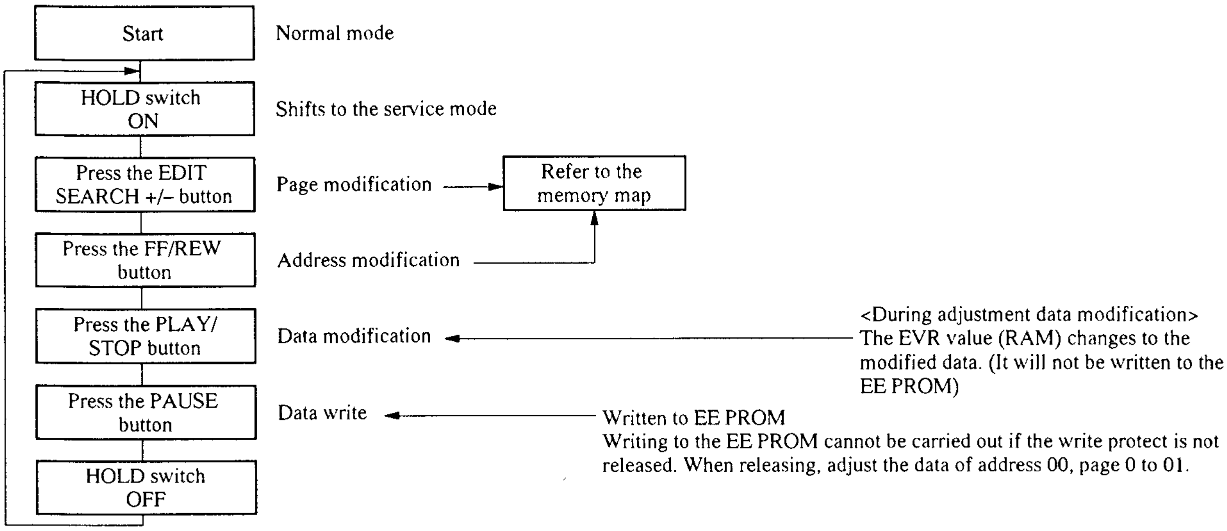
Adjusting remote control unit RM-95 (J-6082-053-A)



HOLD
Normal mode/Service mode switchover
START/STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
Page modification
AUTO/MAN
EDIT SEARCH
COUNTER RESET
DISPLAY
FRAME
SLOW
Data write
REC
PAUSE
Data modification
REW
PB
FF
STOP
RM-95
Address modification

Page	Page allocation	Description
0	Not used	
1	Mode Control RAM, I/O	RAM and I/O interface data memory area required for operating the mode controller. Data is not held when the power is turned off because this area is not ROM.
2~4	Mechanical Control RAM, I/O	RAM and I/O memory area of the mechanical controller.
5	Not used	
6~8	Camera Control RAM, I/O	RAM and I/O memory area of the camera control.
9	Not used	
A	Camera Control RAM, I/O	RAM and I/O memory area of the camera control.
B, C	Not used	
D	VTR EE-PROM	ROM memory area of the VTR part. Data of this area is held by EE-PROM when the power is turned off. Releasing protect is required for changing data.
E	Not used	
F	Camera EE-PROM	ROM memory area of the camera part. Data of this area is held by EE•P•ROM when the power is turned off.

(2) Shifting to the Service Mode Using the Adjusting Remote Control Unit


Start
Normal mode
HOLD switch ON
Shifts to the service mode
Press the EDIT SEARCH +/– button
Page modification
Refer to the memory map
Press the FF/REW button
Address modification
Press the PLAY/ STOP button
Data modification
<During adjustment data modification> The EVR value (RAM) changes to the modified data. (It will not be written to the EE PROM)
Press the PAUSE button
Data write
Written to EE PROM
Writing to the EE PROM cannot be carried out if the write protect is not released. When releasing, adjust the data of address 00, page 0 to 01.
HOLD switch OFF

Command Name	**Command Function**	**Normal LANC command**
Page Up	Page +1	Edit Search +
Page Down	Page –1	Edit Search –
Direc Page Set	Sets the specified page	Event Clear
Address Up	Address +1	Fast Forward
Address Down	Address –1	Rewind
Data Up	Data +1	Play Back
Data Down	Data –1	Stop
Store	Write the data to the EE PROM. RAM	Pause

2. Types of Self-diagnostic Feature

MODE		Contents
TEST	Camera adjustment	Refer to Camera Adjustment
	Switching position adjustment	Refer to each adjustment page
	Battery DOWN adjustment	
	Video, Audio adjustment	
ADJUST	Pass Adjustment track shift	When adjusting tape pass, set this mode and shift the tracking.
	Emergency STOP inhibition	Detection of emergency is inhibited. This allows the following items. • Power is not turned off when the battery is ended. • SP/LP is not automatically distinguished. • Emergence is not detected except for TOP/END detection of the TAPE.
	Read of emergence code	The following functions are added to the emergency display function currently in use. ① The lithium battery is not required because to memorize into EE-PROM is allowed. ② The first emergency and the last emergency are memorized. ③ The mode when the emergency is generated is memorized, in addition to the emergency contents.
	Motor single check	Rotating in forward direction, reverse direction, stopping of each motor can be separately controlled. • Drum motor • Capstan motor • Loading motor
	Function switch check	The acceptance of the function switch of the unit can be confirmed by designating an address. On the contrary, RM-95 can command the substitution for the function switch of the unit.
	Mechanical switch check	The contents of the mechanical switch and the mode switch can be confirmed.
	Sensor check	The following sensor is input by performing A/D converting, and the A/D converted value can be confirmed. TOP sensor, End sensor, S REEL FG, T REEL FG, Thermistor for SWP correction, DEW sensor.
	Reception contents check of wireless remote control	The received code contents of the remote control code can be confirmed.

3. Page D Write Protect

Release/set the page D write protect.

Page 1	Address 00

Data	Function
00	Normal (Write protect condition)
01	Write protect release

4. Page F Write Protect

Release/set the page F write protect.

Page 6	Address 00

Data	Function
10	Normal (Write protect condition)
01	Write protect release

5. Destination Flag

Page D	Address 02

Data	Function	
8E	AEP, UK Model without	Rec Mode Switch
8F	E, Australian Model	

6. Test Mode Setting

Each type of test mode is set/released. Release the protect (page: 1, address: 00, data: 01), before setting the data.

Page D	Address 01

Data	Function
00	Normal
01	Test mode 1 Various emergency inhibition and release Drum, capstan, loading motor, reel, tape top, end, DEW SP/LP automatic distinction inhibition, manual switchover (EDIT SW ON: LP, OFF: SP) 5 minutes pause release inhibition Power off inhibition • release by battery end
02	Test mode 2 1'CH frequency response adjustment SP/LP automatic distinction inhibition, manual switchover (EDIT SW ON: LP, OFF: SP)
03	Test mode 3 Track shift Plays back the track shift Rear lock distinction inhibition during PB SP/LP automatic distinction inhibition, manual switchover (EDIT SW ON: LP, OFF: SP)
04	Test mode 4 Rear lock mode Rear lock playback is performed SP/LP automatic distinction inhibition, manual switchover (EDIT SW ON: LP, OFF: SP)
05	Test mode 5 SP/LP automatic distinction inhibition, manual switchover (EDIT SW ON: LP, OFF: SP)

※ This address data will be recorded on the non-volatile memory by pressing the PAUSE button on the adjusting remote control unit. Take note, as when this happens, the test mode will not be released even if the main power is turned off (6.3 Vdc).

※ Be sure to return the data of this address data to 00 after completing adjustments/repairs.

7. Emergency code

Troubles (errors) can be checked.

Page D	Address 06

First emergency code

······The first error code generated

Page D	Address 07

Last emergency code

······ The last error code generated (this data will be modified each time an error occurs.)

※ Be sure to rewrite the data of addresses 06 and 07 to 00 after completing repairs/adjustments.

※ When rewriting data, be sure to press the PAUSE button of the remote control unit after resetting the data.

Code	Error condition
00	No error
01	Loading motor error
02	Reel error during unloading
03	Other reel errors
04	Capstan error
05	DRUM FG error during drum start up
06	DRUM PG error during drum start up
07	DRUM FG error during drum regular condition
08	DRUM PG error during drum regular condition
09	DRUM Phase error during drum regular

8. Emergency mode

The operation mode during an error outbreak can be checked.

Page D	Address 08

First emergency mode

……The operation mode when the first error is generated

Page D	Address 09

Last emergency mode

……The operation mode when the last error is generated
(This data will be modified each time an error occurs.)

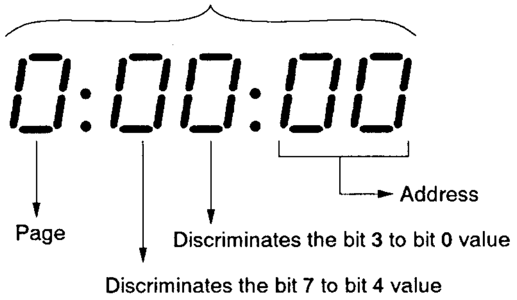
- ※ Be sure to rewrite the data of addresses 08 and 09 to 00 after completing repairs/adjustments.
- ※ When rewriting data, be sure to press the PAUSE button of the remote control unit after setting the data.
- ※ Addresses 08 and 09 of page 0 and addresses 08 and 09 of page D have the same functions.

Code	Error condition
00	BEFOR INITIALIZE
01	EJECTED
02	NORMAL STOP
03	FF
04	NORMAL REC
06	NORMAL PB
07	PB PAUSE
12	LOADING
14	REC PAUSE
26	X1
27	1/5 SLOW
31	UNLOADING
36	-X1
37	-1/5 SLOW
46	CUE
47	1/10 SLOW
56	REVIEW
57	-1/10 SLOW
62	STOP TAPE END
66	X2
67	FRAME
72	STOP TAPE TOP
76	-X2
77	-FRAME
83	REWIND
85	REC REVIEW(+)
95	REC REVIEW(-)
A2	EMERGENCY STOP
A5	EDIT SEARCH(+)
B1	EMERGENCY UNLOADING
B2	STOP EMERGENCY 1
B5	EDIT SEARCH(-)
C2	STOP EMERGENCY 2
E2	STOP NO CASSETTE
F5	EDIT PAUSE

9. Bit value Discrimination

It is necessary to discriminate the bit value by the adjusting remote control unit display data for the following items. Discriminate if the bit value is "1" or "0" using the following table.

Adjusting remote control unit display


0:00:00
Address
Page
Discriminates the bit 3 to bit 0 value
Discriminates the bit 7 to bit 4 value

	Remote Control Unit Display	Bit Value			
		bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (c)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ→	E (E)	1	1	1	0
	F (F)	1	1	1	1

(Example) When the remote control unit display data is "8E", the bit values of bit 7 to bit 4 can be discriminated from column Ⓐ, and that of bit 3 to bit 0 can be discriminated from column Ⓑ.

10. Check of Power Switch, Tape Distinction Switch, etc.

Page 1	Address 3E

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
				$\overline{\text{REC PROOF}}$	ME/$\overline{\text{MP}}$	Hi8/$\overline{\text{Normal}}$	HG/$\overline{\text{Normal}}$

"1"=Recording impossible
"0"=Recording possible

"1"=ME tape
"0"=MP tape

"1"=Hi8 mode playback
"0"=Normal mode playback

"1"=Hi8 MP tape
"0"=Others

Page 1	Address 23

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
					CC DOWN		

"1"=During cassette compartment lock

11. RECOG SW Check

Page 1	Address 3D

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
V MUTE	A MUTE	VA PB MODE	JOG	PB CLOG	REC CLOG	SYNC DET	LP/$\overline{\text{SP}}$

"1"=LP mode playback
"0"=SP mode playback

"1"=SYNC is detected
"0"=SYNC is not detected

"1"=CLOG is detected
"0"=Normal

"1"=When the PB RF signals are being playback normaly
"0"=Others

"1"=JOG mode
"0"=Other

"1"=Playback mode
"0"=Others

"1"=AUDIO MUTE: ON
"0"=AUDIO MUTE: OFF

"1"=VIDEO MUTE: ON
"0"=VIDEO MUTE: OFF

12. Individual Operations of the Drum, Capstan, and Loading Motor

Page 4	Address 11

1) Adjust the mechanical section to the loading completion condition.
2) Set data: 01 to page: 4, address: 0E.
   (Control permission from the adjusting remote control unit of the motor)
3) By setting the data in the following table to page: 4, address: 11, the corresponding motors can be operated individually.
4) After checking the operations, turn off the main power (6.3 Vdc).

Data	Operation
00	Normal
02	Drum forward rotation
04	Drum reverse rotation
06	Capstan forward rotation
08	Capstan reverse rotation
0A	Loading motor forward rotation
0C	Loading motor reverse rotation
03	All motors stop
05	
07	
09	
0B	
0D	
0F	

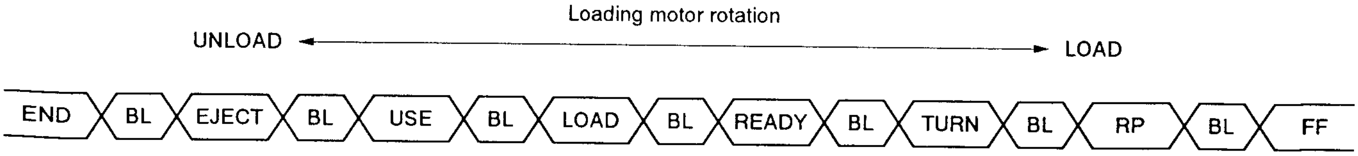
13. Mode Switch Check

The mode switch position (mechanical section condition) can be checked.

Page 1	Address 3E

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
MSW 0	MSW 1	MSW 2					

			POSITION	FUNCTION	$\overline{\text{CC DOWN}}$
0	0	0	BL	Interval of each position	
0	1	1	END	FULL END processing (T side lock removal)	1
0	0	1	EJECT	Cassette compartment ejection	1
1	0	1	USE	EJECTED (Unskate end)	1
0	0	1	LOAD	LOADING (Skate in)	0
1	0	0	READY	NORMAL STOP position	0
1	1	0	TURN	OFF of pinch roller only with PB ↔ REV (oscillating position)	0
0	1	0	RP	PB, REC, RVS, REV, REW	0
0	0	0	FF	FF/CUE	0



14. Mode control micro processor key matrix check

The key input can be checked.

Page 1	Address E8~ED

	Bit7	Bit6 (K IN 6)	Bit5 (K IN 5)	Bit4 (K IN 4)	Bit3 (K IN 3)	Bit2 (K IN 2)	Bit1 (K IN 1)	Bit0 (K IN 0)
Address E8 (K OUT 0)		MAIN	VTR POWER	WHITE BALANCE	EXPOSURE MANUAL ON/OFF	START/STOP	FOCUS AUTO/ MANUAL	STANDBY
Address E9 (K OUT 1)		SUB	CAMERA POWER	STOP	PLAY	EJECT	FF	
Address EA (K OUT 2)		EDIT	DATA SCREEN	PAUSE	REC ※1	ZERO MEMORY	REW	HI8 AUTO/OFF
Address EB (K OUT 3)		EDIT SEARCH (−)	AUTO LOCK	SHUTTER SPEED	PROGRAM AE	TITLE MEMORY	COLOR/ MODE	
Address EC (K OUT 4)		EDIT SEARCH (+)	REMOTE COMMANDER ON/OFF	FADER	TAPE/BATT CHECK	SUPERIMPOSE ON/OFF		
Address ED (K OUT 5)		EXPOSURE (+)	EXPOSURE (−)	TIME (NEXT)	DATA (+)	AGE (EVENT)	COUNTER RESET	BEEP ON/OFF

※1 E, Australian model only

15. Wireless Remote Control Unit Reception Content Check

Page 1	Address 1E

Wireless remote control unit key pressed	**Data**
None	FF
TELE	9A
WIDE	9B
Start/stop	99
Rewind	1B
Fast forward	1C
Stop	18
Playback	1A
Data screen	5A
Pause	19
SLOW	23

16. LCD, LED Check

Page 1	Address A3

Data	**Mode**
00	Normal
02	All segment of LCD, LED light up Buzzer ringing

17. Page D Address List

Note 1: The adjustment data initial value is the data to be input before performing video section adjustment (page D), when the page D data has been erased due to some cause.

Note 2: The data listed in the adjustment data memo column are the fixed data.
Check that these data have not been accidentally rewritten, after completing adjustments.

Note 3: The initial value data, D page, Address 2 is "8E" for AEP, UK model or "8F" for E, Australian model.

Address	Name	Function [ ] indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
00	Category code	Not used	00	00
01	Test mode		00	00
02	Destination flag		8E (8F)	
03	BATT END	Battery end adjustment	8C	
04	SW POSITION (L)	SW POSITION adjustment	80	
05	SW POSITION (H)	SW POSITION adjustment	0B	
06	EMERGENCY code (FIRST)	Error code and mode are memorized. Rewrite the data of these addresses to 00 after repairs/adjustments	00	00
07	EMERGENCY code (LAST)		00	00
08	EMERGENCY mode (FIRST)		00	00
09	EMERGENCY mode (LAST)		00	00
0A	SR DATA (MP Hi8 LP)	CXA1207 serial data	68	68
0B	SR DATA (MP Hi8 SP)	CXA1207 serial data	5C	5C
0C	SR DATA (MP NORMAL LP)	CXA1207 serial data	69	69
0D	SR DATA (MP NORMAL SP)	CXA1207 serial data	65	65
0E	SR DATA (ME Hi8 LP)	CXA1207 serial data	68	68
0F	SR DATA (ME Hi8 SP)	CXA1207 serial data	5C	5C
10	SR DATA (ME NORMAL LP)	CXA1207 serial data	65	65
11	SR DATA (ME NORMAL SP)	CXA1207 serial data	5F	5F
12	SR DATA (EDIT ON Hi8)	CXA1207 serial data	5C	5C
13	SR DATA (EDIT ON NORMAL)	CXA1207 serial data	65	65
14	CAM TITLE BLU R-Y	Camera titler color adjustment [Blue]	7E	
15	CAM TITLE BLU B-Y	Camera titler color adjustment [Blue]	B1	
16	CAM TITLE GRN R-Y	Camera titler color adjustment [Green]	5F	
17	CAM TITLE GRN B-Y	Camera titler color adjustment [Green]	4E	
18	CAM TITLE CYN R-Y	Camera titler color adjustment [Light blue]	5E	
19	CAM TITLE CYN B-Y	Camera titler color adjustment [Light blue]	84	
1A	CAM TITLE RED R-Y	Camera titler color adjustment [Red]	A2	
1B	CAM TITLE RED B-Y	Camera titler color adjustment [Red]	7C	
1C	CAM TITLE VIO R-Y	Camera titler color adjustment [Violet]	A1	
1D	CAM TITLE VIO B-Y	Camera titler color adjustment [Violet]	B2	
1E	CAM TITLE YEL R-Y	Camera titler color adjustment [Yellow]	82	
1F	CAM TITLE YEL B-Y	Camera titler color adjustment [Yellow]	4E	
20		X2MUTE, SIRCS EJECT etc	3C	3C
21		FORCED VTR ON, CAM ON etc DATA: MODE 01: FORCED CAMERA POWER ON 02: FORCED VTR POWER ON	00	00
22~28		Not used		

Table 9-3 (1).

Address	Name	Function [ ] Indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
29			00	00
2A	+ SLOW BRAKE ADJ	SLOW noise position adjustment	D0	
2B	- SLOW BRAKE ADJ		D0	00
2C	+ STILL BRAKE ADJ	STILL noise position adjustment	00	
2D	BATT REMAIN 1	▰▰▰ ⇨ ▰▰▰	9D	
2E	BATT REMAIN 2	▰▰▰ ⇨ ▱▰▰ } Battery Voltage Display input data	9C	
2F	BATT REMAIN 3	▱▰▰ ⇨ ▱▱▰	8E	
30~39		Not used	00	00
3A	MT 'CH	Not used	00	00
3B~45		Not used	00	00
46	REC C RF (EE)	REC C RF level [IC008⑲]	B9	B9
47	REC C RF (PB)	Playback REC C RF level [IC008⑲]	FF	FF
48	RF CONT (ME)	Not used	FF	FF
49	RF CONT (MP)	Not used	FF	FF
4A	SYNC AGC	EE level adjustment [IC008⑦]	68	
4B		Not used	00	00
4C	COMB ADJ	Chroma comb filter adjustment [IC008⑧]	82	
4D	IR	IR adjustment [IC008④]	7F	
4E	CAR (Hi8)	Hi8 Y-FM carrier frequency adjustment [IC008⑥]	A4	
4F	CAR (NOR)	Normal Y-FM carrier frequency adjustment [IC008⑥]	A4	
50	DEV (Hi8)	Hi8 Y-FM deviation adjustment [IC008⑤]	9A	
51	DEV (NOR)	Normal Y-FM deviation adjustment [IC008⑤]	9A	
52	REC Y (Hi8 ME)	Hi8 ME REC Y recording current adjustment [IC008⑫]	9C	
53	REC Y (Hi8 MP)	Hi8 MP REC Y recording current adjustment [IC008⑫]	8E	
54	REC Y (NOR ME)	Normal ME REC Y recording current adjustment [IC008⑫]	9B	
55	REC Y (NOR MP)	Normal MP REC Y recording current adjustment [IC008⑫]	94	
56	REC Y (PB)	Playback REC Y level [IC203⑦]	FF	FF
57	PB Y (EE)	EE PB Y level [IC008②]	84	84
58	PB Y (Hi8)	Hi8 PB Y level adjustment [IC008②]	88	
59	PB Y (NOR)	Normal PB Y level adjustment [IC008②]	88	
5A	EMPH LVL (EE)	EE emphasis input level adjustment [IC008③]	98	
5B	EMPH LVL (PB)	Playback emphasis input level adjustment [IC008③]	9D	
5C	REC L CONT (Hi8 ME SP)	Hi8 ME SP REC L CONT adjustment [IC403③]	7E	
5D	REC L CONT (Hi8 MP SP)	Hi8 MP SP REC L CONT adjustment [IC403③]	75	
5E	REC L CONT (NOR ME SP)	Normal ME SP REC L CONT adjustment [IC403③]	7D	
5F	REC L CONT (NOR MP SP)	Normal MP SP REC L CONT adjustment [IC403③]	79	
60	REC L CONT (Hi8 ME LP)	Hi8 ME LP REC L CONT adjustment [IC403③]	7E	
61	REC L CONT (Hi8 MP LP)	Hi8 MP LP REC L CONT adjustment [IC403③]	70	
62	REC L CONT (NOR ME LP)	Normal ME LP REC L CONT adjustment [IC403③]	7D	
63	REC L CONT (NOR MP LP)	Normal MP LP REC L CONT adjustment [IC403③]	79	
64	PILOT CONT (NOR)	PB RF Level for high speed mode SP/LP detect [IC403②]	73	73
65	PILOT CONT (Hi8)	PB RF Level for high speed mode SP/LP detect [IC403②]	73	73
66	YD ADJ	Not used	00	00
67	PAL JOG	Not used [IC008⑨]	00	00
68~77		Not used	00	00

Table 9-3 (2).

Address	Name	Function [ ] Indicate the adjustment voltage output terminal	Adjustment data	
			Initial value	Memo column
78	REC MATRIX	REC matrix adjustment [IC403④]	AB	
79	PB MATRIX	PB matrix adjustment [IC403④]	9A	
7A	1.5 IR	1.5 MHz IR adjustment [IC403⑮]	A8	
7B	1.5 DEV	1.5 MHz deviation adjustment [IC403⑩]	9B	
7C	1.7 IR	1.7 MHz IR adjustment [IC403⑦]	A2	
7D	1.7 DEV	1.7 MHz deviation adjustment [IC403⑥]	97	
7E	AUDIO FADER	Audio fader [IC403⑤]	FF	FF
7F~81		Not used	00	00
82	TITLE EDGE Y LEVEL	Playback title edge Y level adjustment [IC003⑬]	2B	2B
83~87		Not used	FF	FF
88	TITLE WHITE LEVEL	Playback title Y level adjustment [IC003⑱]	9A	9A
89	TITLE BLUE LEVEL		3C	3C
8A	TITLE GREEN LEVEL		6E	6E
8B	TITLE CYAN LEVEL		79	79
8C	TITLE RED LEVEL		50	50
8D	TITLE VIOLET LEVEL		5B	5B
8E	TITLE YELLOW LEVEL		8E	8E
8F	TITLE BLACK LEVEL		2F	2F
90~B3		Not used	FF	FF
B4	TITLE BLUE R–Y	Playback title color reproduction adjustment	3F	3F
B5	TITLE BLUE B–Y		39	39
B6	TITLE GREEN R–Y		B8	B8
B7	TITLE GREEN B–Y		84	84
B8	TITLE CYAN R–Y		B7	B7
B9	TITLE CYAN B–Y		3D	3D
BA	TITLE RED R–Y		89	89
BB	TITLE RED B–Y		C2	C2
BC	TITLE VIOLET R–Y		C8	C8
BD	TITLE VIOLET B–Y		3C	3C
BE	TITLE YELLOW R–Y		C1	C1
BF	TITLE YELLOW B–Y		46	46
C0~FF		Not used	FF	FF

Table 9-3 (3).

18. How to Set the Rec Mode in the Model without Rec Switch

① Release the protect
Page: 01, address: 00, data: 01
② Change the data page D, address: 02, change the data to “8B”
③ Press the “PAUSE” button after the data set
④ Release the service mode (Hold switch OFF)
⑤ You can set into the Rec Mode by remote control unit (RM-95) rec button.

Note: After the adjustment and reparing. You should be reset the data page: D, address: 02 “8E”.

- Connect KEY IN 3 pattern and KEY OUT 2 pattern on VK-23 board with a jumper wire until the VTR is set to REC mode.

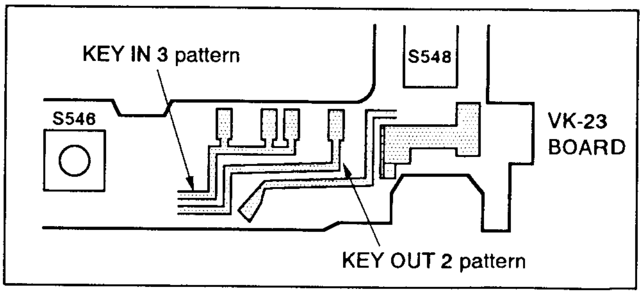


Fig. 9-5.

9-2. POWER SYSTEM ADJUSTMENTS

1. Oscillator Frequency Check (PS-298 board)

Mode	Camera record
Subject	Arbitrary
Measurement Point	Q952 collector
Measuring Instrument	Frequency counter
Specified Value	472 ± 5 kHz

Adjusting method:

1) Check that the oscillator frequency satisfies the specified value.

2. Power Voltage Check (PS-298 board)

Mode	Camera record
Subject	Arbitrary
Measuring Instrument	Digital voltmeter
EVF 4.9V check	
Measurement Point	Pin ① of CN950
Specified Value	4.93 ± 0.15 Vdc
D5V check	
Measurement Point	Pins ① and ② of CN951
Specified Value	4.88 ± 0.15 Vdc
VIDEO 4.9V check	
Measurement Point	Pins ③ and ④ of CN950
Specified Value	4.91 ± 0.15 Vdc
SS 4.9V check	
Measurement Point	Pin ⑪ and ⑫ of CN950
Specified Value	4.97 ± 0.15 Vdc
AUDIO 4.9V check	
Measurement Point	Pin ⑦ and ⑧ of CN950
Specified Value	4.93 ± 0.15 Vdc
CAM5V check	
Measurement Point	Pins ㉔ and ㉕ of CN950
Specified Value	4.81 ± 0.15 Vdc
15V check	
Measurement Point	Pin ㉓ of CN950
Specified Value	15.0 ± 0.4 Vdc
–9V check	
Measurement Point	Pin ㉒ of CN950
Specified Value	–8.5 ± 0.4 Vdc

9-3. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Page D Initial Value Input

If the page D data has been erased due to some cause, input the page D initial value before performing adjustments. For details on the initial value, refer to "Page D address list" in "9-1-7. Service Mode".

Mode	E-E
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	00 to BF

Input method:

1) Release the write protect.
   Page: 1, address: 00, data: 01
2) Select page D, and input the initial value to each address. (After setting the data (initial value), be sure to press the PAUSE button of the adjusting remote control unit before changing the address.)

2. Battery End Adjustment

Mode	Camera record
Signal	Arbitrary
Measurement Point	LCD display of the adjusting remote control unit
Measuring Instrument	
Adjustment Page	D
Specified Value	03 (BATT END) 2D (BATT REMAIN 1) 2E (BATT REMAIN 2) 2F (BATT REMAIN 3)

Connection:

1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 9-6.

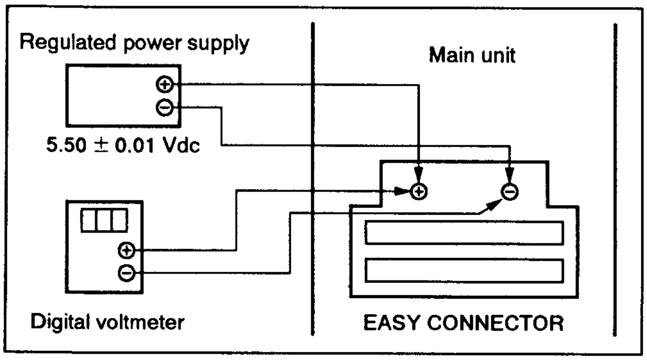


Fig. 9-6.

Adjusting method:

1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 6.3 ± 0.1 Vdc.
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Decrease the output voltage of the regulated power supply so that the digital voltmeter display is 5.50 ± 0.01 Vdc.
4) Select page: 4, address: 10, read the adjusting remote control unit display data, and set to D10.
5) Set data D10 to page: D, address: 03, and press the PAUSE button of the adjusting remote control unit.
6) Convert D10 to decimal notation, and obtain D10′. (Refer to Table 7-6. "Hexadecimal notation–decimal notation conversion table")
7) Calculate D2D′, D2E′ and D2F′ using following equations (decimal notation calculation).
   D2D′=D10′+18
   D2E′=D10′+14
   D2F′=D10′+8
8) Convert D2D′, D2E′ and D2F′ to hexadecimal notation, and obtain D2D, D2E and D2F.
9) Set data: D2D′ to page: D, address: 2D, and press the PAUSE button of the adjusting remote control unit.
10) Set data: D2E′ to page: D, address: 2E, and press the PAUSE button.
11) Set data: D2F′ to page: D, address: 2F, and press the PAUSE button.
12) Perform "Battery Down Check".

3. Battery Down Check

Mode	Camera record
Subject	Arbitrary

Connection

1) Connect the regulated power supply and the digital voltmeter as shown in Fig. 9-6.

Checking method:

Remove the adjusting remote control unit, and perform the following check. If the check is not satisfied, perform from the beginning again.

1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display becomes 6.3 ± 0.1 Vdc.
2) Set to the camera recording mode.
3) Decrease the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.80 ± 0.01 Vdc.
4) Check that the 🔋 mark on the EVF (viewfinder) display is not lighted up. (TALLY lamp lights up).
5) Decrease the the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.54 ± 0.01 Vdc.
6) Check that the 🔋 mark and the TALLY lamp on the EVF display on the EVF display blinks every second.
7) Decrease the the output voltage of the regulated power supply so that the digital voltmeter display becomes 5.42 ± 0.01 Vdc.
8) Check that the 🔋 mark and the TALLY lamp on the EVF display are blinking faster, the VTR stops and the power supply turns off.

9-4. SERVO SYSTEM ADJUSTMENTS

1. Switching Position Adjustment (CS-33 board)

Mode	Playback
Signal	Alignment tape: For tracking adjustment (WR5-1CP)
Measurement Point	CH1: Pin ④ of CN503 (RF SWP) CH2: Pin ③ of CN503 (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	04 (SW POSITION) (LOW) 05 (SW POSITION) (HIGH)
Specified Value	$t_1=0 \pm 10$ µsec

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Set data: 0B to page: D, address: 05.
3) Change the data of page: D, address: 05 and minimize "t1". (Coarse adjustment)
4) Press the PAUSE button of the adjusting remote control unit.
5) Change the data of page: D, address: 04, and adjust so that the switching position (t_1) becomes the specified value. (Fine adjustment)
6) Press the PAUSE button of the adjusting remote control unit.

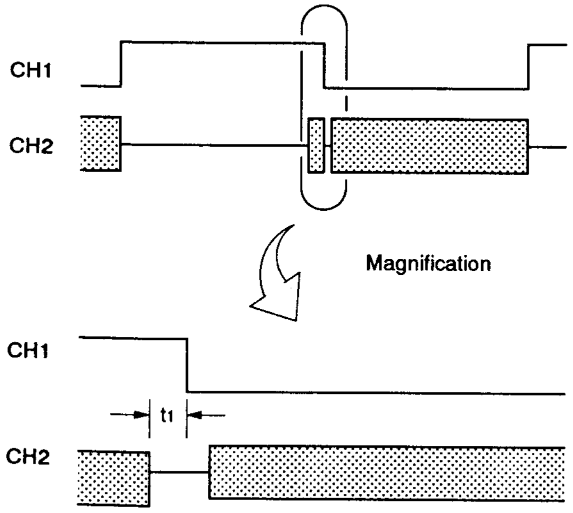


Fig. 9-7.

2. SLOW Noise Position Adjustment

Mode	Slow playback (LP)
Signal	Self recorded tape (LP)
Measurement Point	Check the TV monitor
Measuring Instrument	
Adjustment Page	D
Adjustment Address	2A (+ SLOW BRAKE ADJ)

Adjusting method:

1) Set up the slow playback mode using the remote control unit.
2) Turn on the HOLD switch of the adjusting remote control unit.
3) Release the protect.
   Page: 1, address: 00, data: 01
4) Change the data of address: 2A of page: D, and settle the noise on the TV monitor to the specified position.
5) Press the PAUSE button of the adjusting remote control unit.

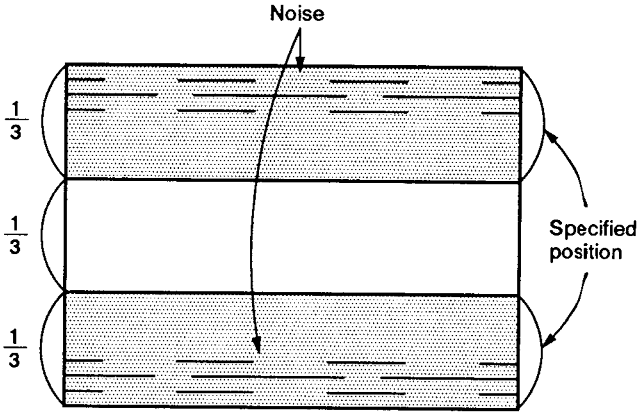


Fig. 9-8.

3. STILL Noise Position Adjustment

Mode	Playback pause (LP)
Signal	Self recorded tape (LP)
Measurement Point	Check the TV monitor
Measuring Instrument	
Adjustment Page	D
Adjustment Address	2C (STILL BRAKE ADJ)

Adjusting method:

1) Set up the playback mode.
2) Press the PAUSE button to set up the playback pause mode.
3) Confirm that the noise on the TV monitor within the specified position.
4) If the specification is not satisfied, perform the following adjustment.
5) Turn on the HOLD switch of the adjusting remote control unit.
6) Release the protect.
   Page: 1, address: 00, data: 01
7) Change the data of address: 2C of page: D, and press the PAUSE button of the adjusting remote control unit.
8) Turn off the HOLD switch of the adjusting remote control unit.
9) Repeat steps 1) to 4).

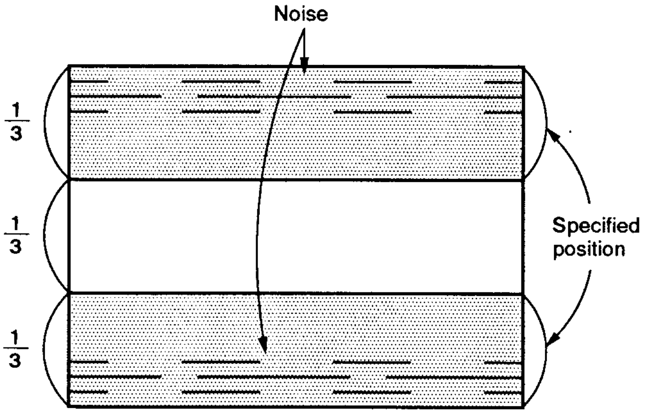


Fig. 9-9.

9-5. VIDEO ADJUSTMENTS

The adjustments of the video system must be performed according to the following adjustment procedure.

The color video signal supplied from the pattern generator is used as the video input signal for adjusting the video system in recording mode. Check that the sync signal and the color burst signal satisfy the specification specified during the adjustment set-up shown in Figs. 9-3. and 9-4.

Use a ME tape unless specified otherwise. Check that the Hi8 switch is at "Auto".

[Adjusting procedure]

1) Playback frequency characteristics adjustment
2) Flying erase check
3) VXO oscillation frequency check
4) SYNC AGC level adjustment
5) IR adjustment
6) Chroma comb filter adjustment
7) Emphasis input level adjustment
8) PB Y level adjustment
9) PB LINE OUT level adjustment
10) Normal mode Y FM carrier frequency adjustment
11) Normal mode Y FM deviation adjustment
12) Hi8 mode Y FM carrier frequency adjustment
13) Hi8 mode Y FM deviation adjustment
14) Chroma emphasis adjustment
15) REC C RF level adjustment
16) REC Y level adjustment
17) REC L CONT adjustment
18) REC ATF level check
19) Playback title colour reproduction adjustment
20) Playback title Y level adjustment
21) Playback title edge Y level adjustment

1. Playback Frequency Characteristics Adjustment (RP-138 board)

Note: adjusting element for CH2 is shown in parentheses [ ].

Mode	Playback
Signal	Alignment tape: For Hi8 mode frequency characteristics adjustment (WR5-7CE)
Measurement Point	CH1: Pin ③ of CN503 (PB RF) EXT TRIG: Pin ④ of CN503 (RF SWP)
Measuring Instrument	Oscilloscope TRIG SLOP: +, [–]
Adjusting Element	RV902 (CH1), [RV901 (CH2)]
Specified Value	4.5 MHz level: 8.5 MHz level= 3: (2.0 ± 0.2)

Adjusting method:

1) Adjust RV902 [RV901] so that the level ratio of 4.5 MHz and 8.5 MHz of each PB RF output waveform of 1a, 1b, 2a, 2b to the specified value.

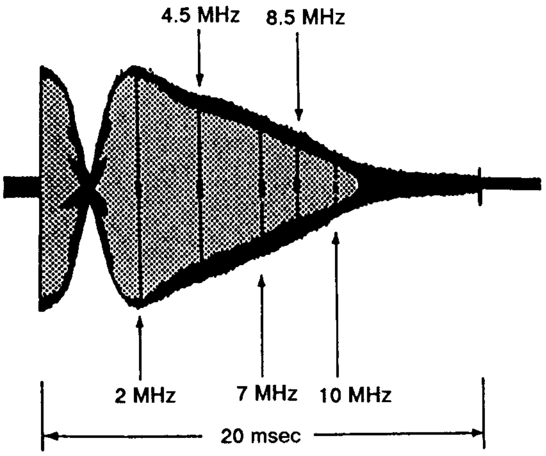


Fig. 9-10.

2. Flying Erase Check (VI-113 board)

Mode	Record
Signal	Arbitrary
Measurement Point	Pin ② of W901 (FE (X)) (JL901)
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency: Above 7.5 MHz Voltage: Above 6.0 Vp-p

Note: Use a MP type tape.

Checking method:

1) Check that the oscillation frequency is above 7.5 MHz and that the oscillation voltage is above 6.0 Vp-p.

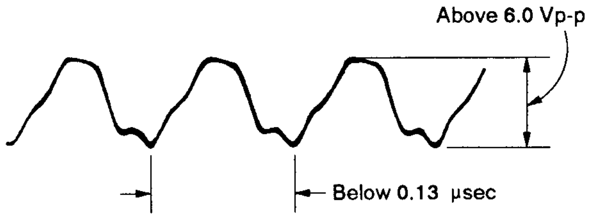


Fig. 9-11.

3. VXO Oscillation Frequency Check (VI-113 board)

Mode	Playback
Signal	Arbitraly tape
Measurement Point	Pin ⑫ of IC301
Measuring Instrument	Frequency counter
Specified Value	4433619 ± 50 Hz

Note: Connect the frequency counter via a high impedance (approximately 10 MΩ) and low capacity (below 10 pF) buffer.

Adjusting method:

1) Check that the oscillation frequency of pin ⑫ of IC301 is 4433619 ± 50 Hz.

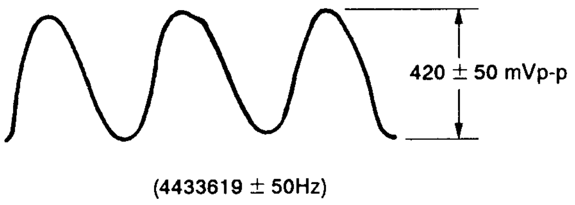


Fig. 9-12.

4. SYNC AGC Level Adjustment (VI-113 board)

Mode	Record
Signal	Color bar (S VIDEO)
Measurement Point	Pin ㉚ of IC201 (EE PB Y) (JL227)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4A (SYNC AGC)
Specified Value	A=0.5 ± 0.01V

Adjusting method:

1) Release the protect.
Page: 1, address: 00, data: 01

2) Change the data of page: D, address: 4A, and adjust so that the Y signal level (A) becomes the specified value.

3) Press the PAUSE button of the adjusting remote control unit.

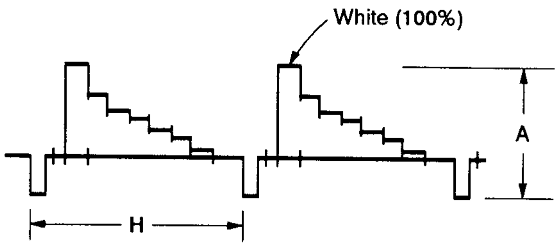


Fig. 9-13.

5. IR Adjustment (VI-113 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑦ of IC201 (Y COMB OUT) (JL219)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	4D (IR)
Specified Value	Residual chroma component (A) is minimum (below 40 mVp-p)

Connection

1) Connect pin ⑭ of IC201 (or pin ② of IC202) to pin (51) of IC201 with a jumper wire.

Adjusting method:

1) Check that the input is "VIDEO".

2) Release the protect.
Page: 1, address: 00, data: 01

3) Change the data of page: D, address: 4D, and adjust so that the residual chroma component (A) becomes minimum.

4) Press the PAUSE button of the adjusting remote control unit.

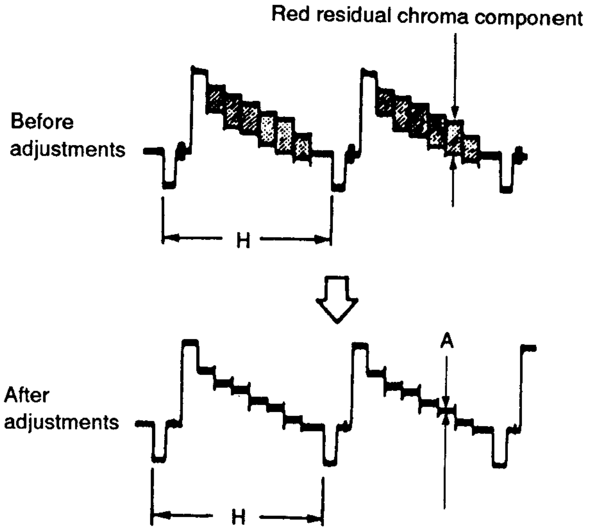


Fig. 9-14.

6. Chroma Comb Filter Adjustment (VI-113 board)

Mode	Record
Signal	Color bar (VIDEO)
Measurement Point	Pin ⑪ of IC201 (C+CD) (JL437)
Measuring Instrument	Oscilloscope
Adjusting Element	RV161 (Phase)
Adjustment Page	D
Adjustment Address	4C (COMB ADJ)
Specified Value	Residual chroma component (A) is minimum.

Adjusting method:

1) Check that the input is "VIDEO".
2) Set the "Hi8" switch to "OFF".
3) Release the protect.
   Page: 1, address: 00, data: 01
4) Change the data of page: D, address: 4C, and adjust the residual chroma component to minimum.
5) Adjust RV161 so that the residual chroma component (A) becomes minimum.
6) Repeat 4) and 5) until the specified value is satisfied.
7) Press the PAUSE button of the adjusting remote control unit.
8) Set the "Hi8" switch to "AUTO".

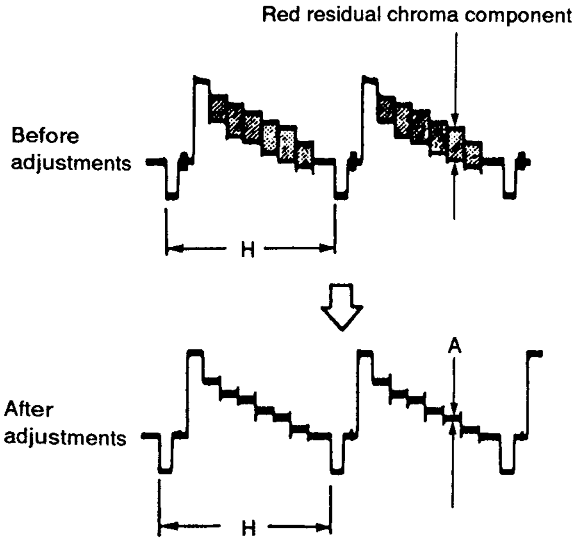


Fig. 9-15.

7. Emphasis Input Level Adjustment (VI-113 board)

Mode	Record
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑤ of IC203 (or Pin ③ of IC201) (JL225)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5A (EMP LEVEL)
Specified Value	A=0.50 ± 0.01V

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 5A, and adjust so that the Y signal level (A) becomes the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

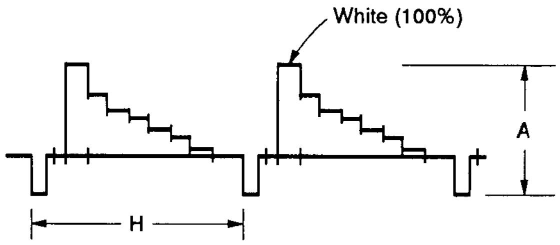


Fig. 9-16.

8. PB Y Level Adjustment (VI-113 board)

Mode	Playback
Signal	Alignment tape: For checking operations Color bar section • Normal mode WR5-5CSP • Hi8 mode WR5-8CSE
Measurement Point	Pin ⑮ of IC201 (JL216)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	• Normal mode 59 (PB Y NOR) • Hi8 mode 58 (PB Y Hi8)
Specified Value	A=0.50 ± 0.01V

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Playback the color bar section of the normal mode alignment tape (WR5-5CSP).
3) Change the data of page: D, address: 59, and adjust so that the Y signal level (A) becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.
5) Playback the color bar section of the Hi8 mode alignment tape (WR5-8CSE).
6) Change the data of page: D, address: 58, and adjust so that the Y signal level (A) becomes the specified value.
7) Press the PAUSE button of the adjusting remote control unit.

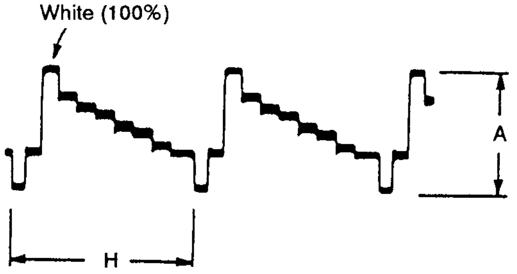


Fig. 9-17.

9. PB LINE OUT Level Adjustment

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-8CSP) Color bar section
Measurement Point	Pin ⑤ of CN003
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5B (EMPH LEVEL (PB))
Specified Value	A=1.0 ± 0.05V

Note: Terminate the VIDEO output terminal at 75Ω .

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 5B, and adjust so that the video signal level (A) becomes the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

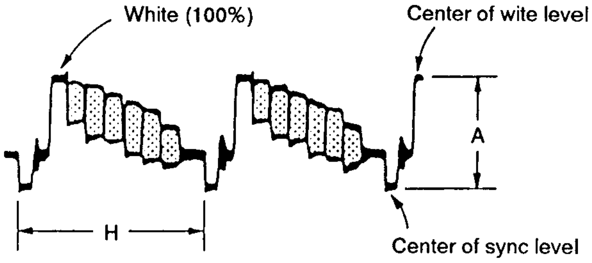


Fig. 9-18.

10. Normal Mode Y FM Carrier Frequency Adjustment (VI-113 board)

Mode	E-E
Signal	No signal
Measurement Point	Pin ㊸ of IC201 (Y RF OUT) (JL209)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4F (CAR. NORMAL)
Specified Value	4.38 ± 0.04 MHz

Adjusting method:

1) Insert a normal MP type tape.
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Change the data of page: D, address: 4F, and adjust so that the Y FM carrier frequency becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.

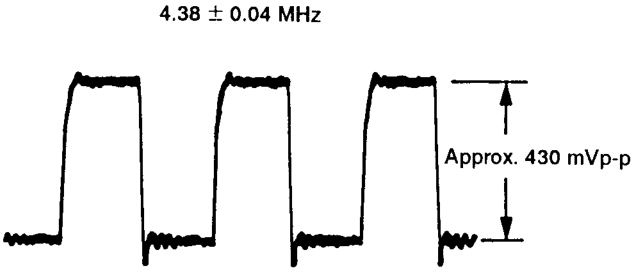


Fig. 9-19.

11. Normal Mode Y FM Deviation Adjustment (VI-113 board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑮ of IC201 (JL216)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	51 (DEV. NORMAL)
Specified Value	A=0.50 ± 0.01V

Note: Check that "Emphasis Input Level Adjustment", and "PB Y Level Adjustment" have been completed.

Adjusting method:

1) Insert a normal MP type tape.
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Record the color bar signal.
4) Playback the recorded signal.
5) Check the playback signal level (A).
   Specification:A=0.50 ± 0.01V
6) If the specification is not satisfied, change the data of page: D, address: 51, and repeat steps 3) to 5).

Playback signal level	Changing the data
When smaller than the specified value	Increase
When bigger than the specified value	Decrease

7) Press the PAUSE button of the adjusting remote control unit.
8) Perform "Normal Mode Y FM Carrier Frequency Adjustment".

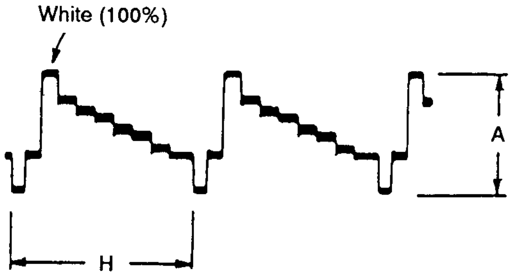


Fig. 9-20.

12. Hi8 Mode Y FM Carrier Frequency Adjustment (VI-113 board)

Mode	E-E
Signal	Non signal
Measurement Point	Pin ㊸ of IC201 (Y RF OUT) (JL209)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	4E (CAR. Hi8)
Specified Value	5.92 ± 0.04 MHz

Adjusting method:

1) Insert a ME type tape, and check that the "Hi8" switch is at "Auto".
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Change the data of page: D, address: 4E, and adjust so that the Y FM carrier frequency becomes the specified value.
4) Press the PAUSE button of the adjusting remote control unit.

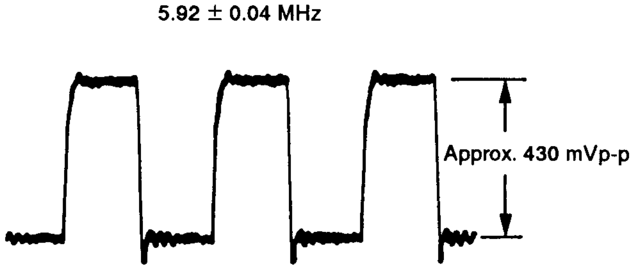


Fig. 9-21.

13. Hi8 Mode Y FM Deviation Adjustment (VI-113 board)

Mode	Record and playback
Signal	Color bar (S VIDEO)
Measurement Point	Pin ⑮ of IC201 (JL216)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	50 (DEV. Hi8)
Specified Value	A=0.50 ± 0.01V

Note: Check that "Emphasis Input Level Adjustment" and "PB Y Level Adjustment" have been completed.

Adjusting method:

1) Insert a ME type tape, and check that the "Hi8" switch is at "Auto".
2) Release the protect.
   Page: 1, address: 00, data: 01
3) Record the color bar signal.
4) Playback the recorded signal.
5) Check the playback signal level (A).
   Specification: A=0.50 ± 0.01V
6) If the specification is not satisfied, change the data of page: D, address: 50, and repeat steps 3) to 5).

Playback signal level	Changing the data
When smaller than the specified value	Increase
When bigger than the specified value	Decrease

7) Press the PAUSE button of the adjusting remote control unit.
8) Perform "Hi8 Mode Y FM Carrier Frequency Adjustment".

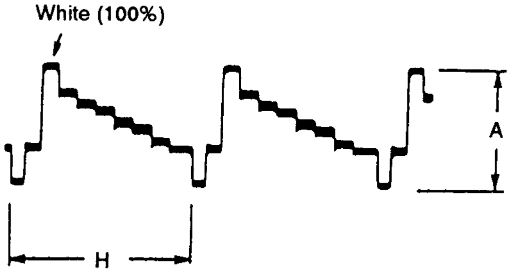


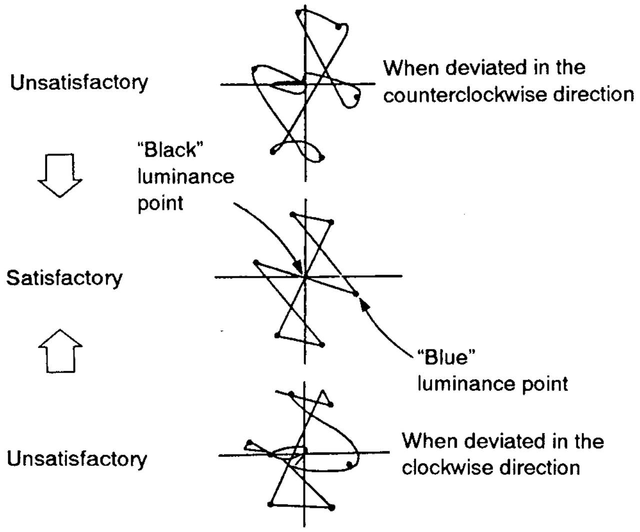
Fig. 9-22.

14. Chroma Emphasis Adjustment (VI-113 board)

Mode	Playback
Signal	Alignment tape: For checking operations Color bar section
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Element	FL302
Specified Value	The path from the blue luminance point to black luminance point should be a straight line.

Adjusting method:

1) Adjust FL302 so that the path from the blue luminance point to black luminance point becomes a straight line.



Unsatisfactory
When deviated in the counterclockwise direction
"Black" luminance point
Satisfactory
"Blue" luminance point
Unsatisfactory
When deviated in the clockwise direction

Fig. 9-23.

15. REC C RF Level Adjustment (VI-113 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑤ of IC302 (JL208)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	46 (REC C RF (EE))
Specified Value	A=125 ± 10 mVp-p (Hi8 ME SP Mode)

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 46, and adjust so that the chroma signal level (A) becames the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

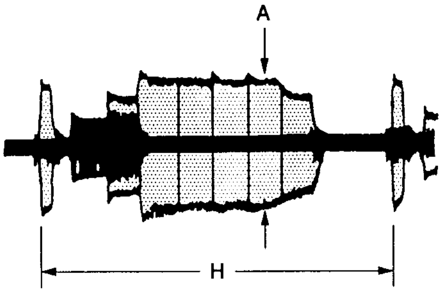
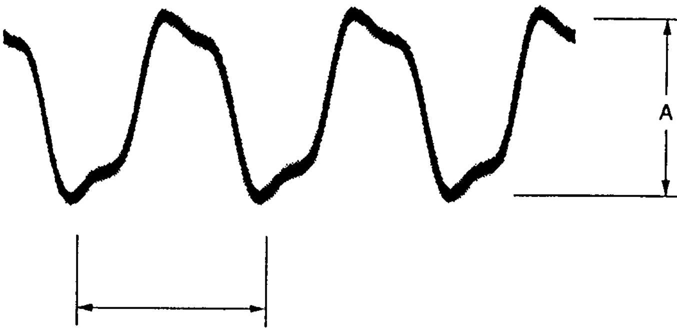


Fig. 9-24.

16. REC Y Level Adjustment (CS-33 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑥ of CN053 (REC 2)
Measuring Instrument	Oscilloscope (without 20 MHz band width)
Adjustment Page	D
Adjustment Address	52 (REC Y (Hi8 ME))
Specified Value	Hi8 ME mode A=220 ± 5 mVp-p



Hi8 mode: Approx. 0.17 μsec
Normal mode: Approx. 0.23 μsec

Fig. 9-25.

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
- Hi8 ME mode adjustment
2) Insert the ME tape, and set the record mode.
3) Check that the Hi8 switch is at "Auto".
4) Change the data of page: D, address: 52, and adjust so that REC Y level (A) becomes the specified value.
5) Press the PAUSE button of the adjusting remote control unit.
- Hi8 MP mode adjustment
6) Change the data of page: D, address: 53.
7) Press the PAUSE button of the adjusting remote control unit.
8) Input Number of Data is page: D, address: 52
   Data Number – E (Hex)
   Example: If page: D, address: 52, Data is "9A" then input page: D, address: 53, Data is "8C".
- Normal ME mode adjustment
9) Change the data of page: D, address: 54.
10) Press the PAUSE button of the adjusting remote control unit.
11) Set the Hi8 switch to "Auto".
12) Input Number of Data is page: D, address: 52
    Data Number – 1 (Hex)
    Example: If page: D, address: 52, Data is "9A" then input page: D, address: 54, Data is "99".
- Normal MP mode adjustment
13) Change the data of page: D, address: 55.
14) Press the PAUSE button of the adjusting remote control unit.
15) Input Number of Data is page: D, address: 52
    Data Number – 8 (Hex)
    Example: If page: D, address: 52, Data is "9A" then input page: D, address: 55, Data is "92".

17. REC L CONT Adjustment (CS-33 board)

Mode	Record (SP)
Signal	Color bar
Measurement Point	Pin ⑥ of CN053 (REC 2)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5C (REC L CONT (Hi8 ME SP))
Specified Value	Hi8 ME mode A=30 ± 2 mVp-p

Note: Check that the REC MODE switch is at "SP".

Connection

1) Connect CL463 (Emitter of Q415) and Pin ① of CN401 (AUDIO 4.9V) with a jamper wire.

CS-33 BOARD (CONDUCTOR SIDE)

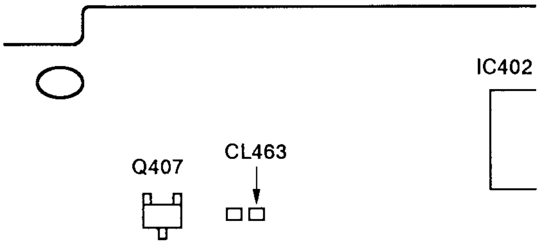


Fig. 9-26.

2) Connect the contact point of R566 and R567 (near pin (85) of IC503) to the GND with a 0.01 μF capacitor (1-101-004-00).

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 00
2) After memorizing each data of address: 52 to address: 55 of page: D, set data: 00 to each address.
   (Minimizing the REC Y RF level)

- Hi8 ME mode

3) Insert the ME tape, and set the record mode.
4) Check that the Hi8 switch is at "Auto".
5) Change the data of page: D, address: 5C, and adjust so that REC C RF level (A) becomes the specified value.
6) Press the PAUSE button of the adjusting remote control unit.

- Hi8 MP mode

7) EVR data shift values of each mode (Hi8 ME adjustment values)
   Taking the data of REC Y (Add. 52) of Hi8 ME as "X", Hi8 MP (Add. 53) =X–E (hexadecimal), NOR ME (Add. 54) =X–1 (hexadecimal), NOR MP (Add. 55) =X–8 (hexadecimal)
   However, the EVR data shift values will change as follows according to the recording current of Y.
   Taking the data of REC AFM (Add. 5C) of Hi8 ME as "Y", Hi8 MP (Add. 5D) =Y–9 (hexadecimal), NOR ME (Add. 5E) =Y–1 (hexadecimal), NOR MP (Add. 5F) =Y–5 (hexadecimal)
8) Data values of LP mode (Add. 60 to 63)
   Add. 60=Add. 5C, Add. 61=Add. 5D–5 (hexadecimal)
   Add. 62=Add. 5F, Add. 63=Add. 5F
   Note: Only the data of Hi8 MP LP is different.

Address	Data
60	Same data as address: 5C
61	Address: 5D data – 5 (Hex)
62	Same data as address: 5E
63	Same data as address: 5F

- Processing after adjustments

20) Set the data memorized at step 2) to each address from address: 52 to address: 55 of page: D. and press the PAUSE button of the adjusting remote control unit.

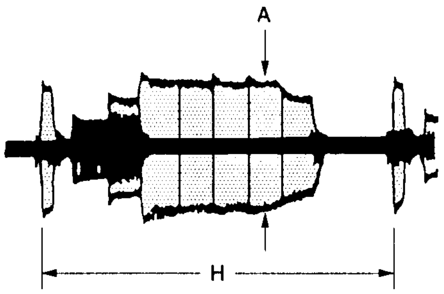


Fig. 9-27.

18. REC ATF Level Checking (CS-33 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑱ of IC501
Measuring Instrument	Oscilloscope
Specified Value	A=600 ± 30 mVp-p

Checking method

1) Confirm that the REC ATF signal level (A) satisfies the specified value.

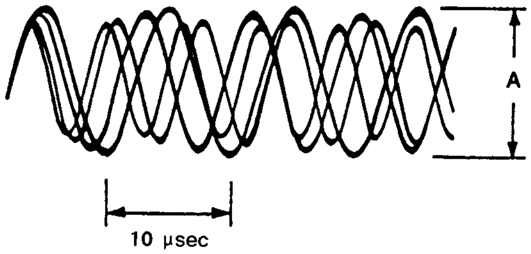


Fig. 9-28.

19. Playback Title Color Reproduction Adjustment

Adjustment the Color Burst Gain to "75% Burst position" on the vectorscope

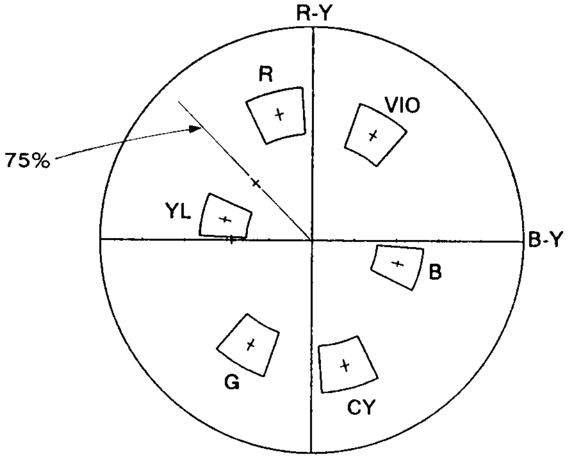


Fig. 9-29.

Note: At the playback title "ON".
Playback mode is changed to the "JOG" mode (PAL JOG ON, Replaced "Pseudo Burst").

20. Playback Title Y Level Adjustment

Mode	Playback
Signal	Tape with the color signal recorded (WR5-CSP)
Measurement Point	Pin ⑨ (S(Y) I/O) of CN509 on SC-33 board (Note 1)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	88 (TITLE WHITE Y LEVEL), 89 (TITLE BLUE Y LEVEL), 8A (TITLE GREEN Y LEVEL), 8B (TITLE CYAN Y LEVEL), 8C (TITLE RED Y LEVEL), 8D (TITLE VIOLET Y LEVEL), 8E (TITLE YELLOW Y LEVEL), 8F (TITLE BLACK Y LEVEL)
PageSpecified Value	White A=0.86 ± 0.06V Blue A=0.36 ± 0.03V Green A=0.63 ± 0.03V Cyan A=0.69 ± 0.03V Red A=0.47 ± 0.02V Violet A=0.53 ± 0.02V Yellow A=0.80 ± 0.05V Black A=0.31 ± 0.02V

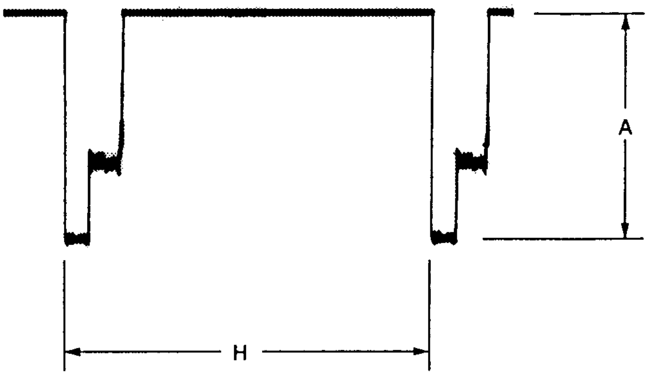


Fig. 9-30.

Note 1: Terminate the Y signal terminal of the S video output terminal at 75Ω .

Preparations:
1) Adjust the POWER switch to "CAMERA".
2) Turn on the STANDBY switch.
3) Cover the lens with a black cap.
4) Press the "SUPERIMPOSE MEMORY" button to record the title.
5) Set the POWER switch to "VTR (or PLAYER)".

Adjusting method:
1) Release the protect.
   Page:1, address:00, data:01.
2) Turn off the HOLD switch of the adjusting remote control unit.
3) Turn on the data screen.
4) Press the "SUPERIMPOSE ON/OFF" button to superimpose the title.
5) Select "WHITE" with the "COLOR/MODE" button.
6) Turn on the HOLD switch of the adjusting remote control unit.
7) Change the data of address 88 of page D, and adjust so that the Y signal level (A) becomes the specified value.
8) Press the PAUSE button of the adjusting remote control unit.
9) Adjust for blue (address 89), green (address 8A), cyan (address 8B), red (address 8C), violet (address 8D), yellow (address 8E) and black (address 8F) in the same way.

21. Playback Title Edge Y Level Adjustment

Mode	Playback
Signal	Tape with the color bar signal recorded (WR5-CSP)
Measurement Point	Pin ⑨ (S(Y) I/O) of CN509 on SC-33 board (Note 1)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment address	82 (TITLE EDGE Y LEVEL)
Specified Value	A=0.035 ± 0.005V

Note 1: Terminate the Y signal terminal of the S video input/output terminal at 75Ω .

Preparations:
1) Adjust the POWER switch to "CAMERA".
2) Turn on the STANDBY switch.
3) Expose the following title image.
4) Press the "SUPERIMPOSE MEMORY" button to record the title.
5) Set the POWER switch to "VTR (or PLAYER)".

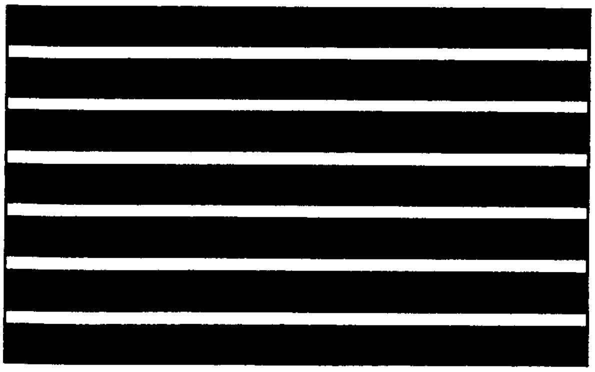


Fig. 9-31.

Adjusting method:
1) Release the protect.
   Page:1, address:00, data:01.
2) Turn off the HOLD switch of the adjusting remote control unit.
3) Turn on the data screen.
4) Press the "SUPERIMPOSE ON/OFF" button to superimpose the title.
5) Select "WHITE" with the "COLOR/MODE" button.
6) Change the data of address 82 of page D, and adjust so that the title edge Y level (A) beomes the specified value.
7) Press the PAUSE button of the adjusting remote control unit.

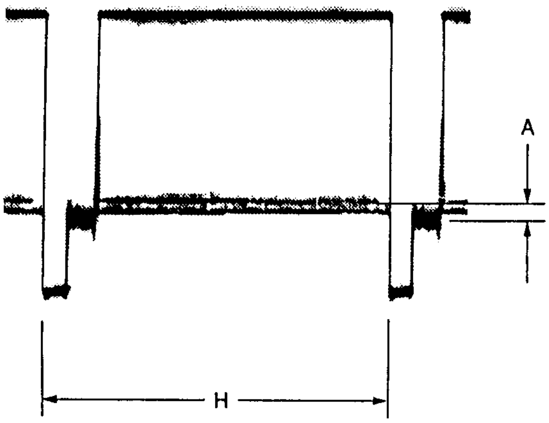


Fig. 9-32.

9-6. AUDIO SYSTEM ADJUSTMENT

Note: 1) When inputting the audio signal, input the same signal to both L, and R channels, unless specified otherwise.

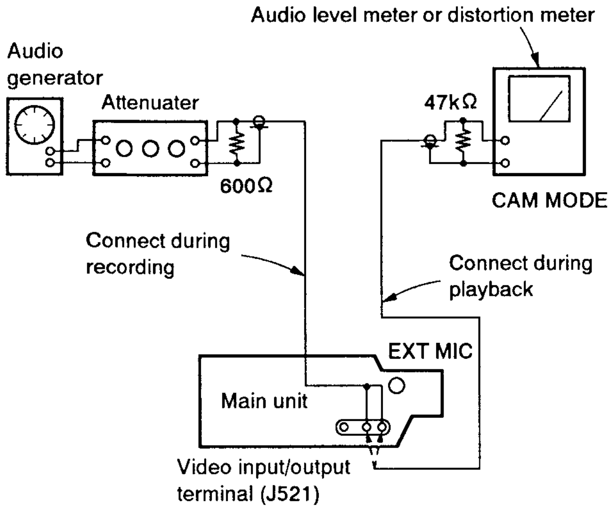
2) Be sure to insert the plug (shorting plug or dummy plug, etc.) into the audio input/output terminal (right). If the plug is not inserted, the unit will be set into the monaural mode, and correct adjustments cannot be carried out.

(Monaural mode)

During recording··REC AFM RF1.7 MHz carrier will not be output.

During playback·· The L+R signal will be output from the audio input/output terminal (left).

3) The items to be adjusted for the R channel will be indicated within the [ ], in regard to the adjusting items to be adjusted for both L and R channels.


Audio level meter or distortion meter
Audio generator
Attenuater
47kΩ
600Ω
CAM MODE
Connect during recording
Connect during playback
EXT MIC
Main unit
Video input/output terminal (J521)

When connecting the input/output equipment simultaneously, adjust the input/output switchover switch to the [input] position, and connect the audio oscillator/attenuater to the audio input/output terminal.
Connect the audio level meter or the distortion meter as shown in the following figure.

Fig. 9-33.

[Adjustment Procedure]

1) 1.5 MHz carrier frequency check
2) 1.7 MHz carrier frequency check
3) 1.5 MHz recording level check
4) 1.7 MHz recording level check
5) E-E output level check
6) REC matrix L–R check
7) REC matrix L+R check
8) IR adjustment
9) 1.5 MHz deviation adjustment
10) 1.7 MHz deviation adjustment
11) PB matrix L adjustment
12) PB matrix R check
13) Overall level characteristics, distortion check
14) Separation check
15) Overall noise level check

1. 1.5 MHz Carrier Frequency Check (CS-33 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of IC402
Measuring Instrument	Frequency counter (Note 1)
Specified Value	1.500 ± 0.002 MHz

Note: Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.

Checking method:

1) Check that the 1.5 MHz carrier frequency satisfies the specified value.

2. 1.7 MHz Carrier Frequency Check (CS-33 board)

Mode	Record
Signal	No signal
Measurement Point	Pin ⑧ of IC404
Measuring Instrument	Frequency counter (Note 1)
Specified Value	1.700 ± 0.002 MHz

Note: 1) Use a high impedance (above 1 MΩ) and low capacity (below 20 pF) probe.
2) Insert a shorting plug into the audio input terminal (right).

Checking method:

1) Check that the 1.7 MHz carrier frequency satisfies the specified value.

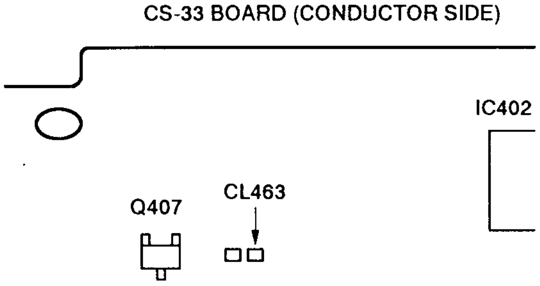


Fig. 9-34.

3. 1.5 MHz Record Level Check (CS-33 board)

Mode	Record (Monaural)
Signal	No signal
Measurement Point	Emitter of Q415 (REC AFM RF) (CL463)
Measuring Instrument	Oscilloscope
Specified Value	A=26 ± 3 mVp-p

Note: Do not insert the plug into the audio input terminal (right).

Checking method:

1) Check that the 1.5 MHz carrier level satisfies the specified value.
(Read the center of the luminance line width and note down the level read.)

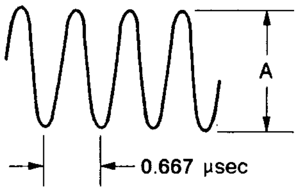


Fig. 9-35.

4. 1.7 MHz Record Level Check (CS-33 board)

Mode	Record
Signal	No signal
Measurement Point	Emitter of Q415 (REC AFM RF) (CL463)
Measuring Instrument	Oscilloscope
Specified Value	A=48 ± 5 mVp-p

Note: Insert a shorting plug into the audio input terminal (right).

Checking method:

1) Check that the REC AFM RF level (A) satisfies the specified value.

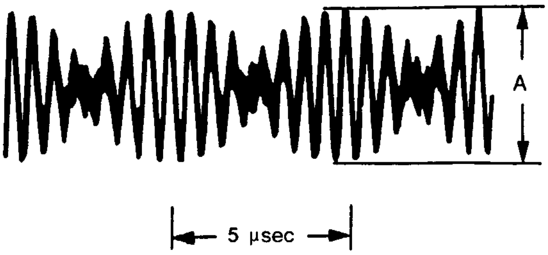


Fig. 9-36.

5. CAM E-E Output Level Check

Mode	Record
Signal	400 Hz, –66 dBs audio input terminal right [left] EXT MIC JACK
Measurement Point	PIN JACK L•R
Measuring Instrument	Oscilloscope
Specified Value	925^{+240}_{-190} mVp-p (–7.5 ± 2 dBs)

Checking method:

1) Check that the 400 Hz signal level satisfies the specified value.

6. REC Matrix L-R Adjustment (CS-33 board)

Mode	Record
Signal	400 Hz, –66 dBs Input to both left and right terminals of the audio input terminal EXT MIC JACK
Measurement Point	Pin ③ of IC401
Measuring Instrument	Oscilloscope (Use 1:1 probe)
Adjustment Page	D
Adjustment Address	78 (REC MATRIX)
Specified Value	0 ± 5 mVp-p

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 78, and minimize the 400 Hz signal level.
3) Press the PAUSE button of the adjusting remote control unit.

7. REC Matrix L+R Check (CS-33 board)

Mode	Record
Signal	1. 400 Hz, –66 dBs: EXT MIC JACK No signal: EXT MIC JACK 2. No signal: EXT MIC JACK 400 Hz, –66 dBs: EXT MIC JACK
Measurement Point	Pin ㉕ of IC401
Measuring Instrument	Oscilloscope
Specified Value	The level difference is 0 ± 10 mVp-p when only the left terminal is input and when only the right terminal is input.

Note: When measuring the signal level of pin ㉕ of IC401, wait for more than 1 minute after signal input before measuring. (To stabilize the AGC)

Adjusting method:

1) Input the 400 Hz, -7.5 dBs signal only to the audio input terminal (left). (Insert the shorting plug to the audio input terminal (right).)
2) Read the 400 Hz signal level of pin ㉕ of IC401, and take it down. (Approximately 200 mVp-p)
3) Input the 400 Hz, -7.5 dBs signal only to the audio input terminal (right). (Insert the shorting plug to the audio input terminal (left).)
4) Check that the 400 Hz signal level of pin ㉕ of IC401 is (the value that was taken down at step 2) ± 10 mVp-p.

8. IR Adjustment (CS-33 board)

Mode	Playback
Signal	Alignment tape: AFM stereo For checking operations (WR5-9CS)
Measurement Point	Pins ㊹ and ⑥ of IC402 (1.5 IR) Pins ㊹ and ⑥ of IC404 (1.7 IR)
Measuring Instrument	Digital voltmeter
Adjustment Page	D
Adjustment Address	7A (1.5 IR), 7C (1.7 IR)
Specified Value	The DC voltage difference between pins ㊹ and ⑥ is 0 ± 10 mVdc

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01

- 1.5 IR adjustment

2) Connect the digital voltmeter to pin ㊹ of IC402, and read the voltage. (Approximately 2100 mVdc)
3) Connect the digital voltmeter to pin ⑥ of IC402.
4) Change the data of page: D, address: 7A, and adjust so that the voltage of pin ⑥ of IC402 becomes equal to the voltage of pin ㊹. (Voltage difference below 10 mVdc)
5) Press the PAUSE button of the adjusting remote control unit.

- 1.7 IR adjustment

6) Connect the digital voltmeter to pin ㊹ of IC404, and read the voltage. (Approximately 2100 mVdc)
7) Connect the digital voltmeter to pin ⑥ of IC400.
8) Change the data of page: D, address: 7C, and adjust so that the voltage of pin ⑥ of IC404 becomes equal to the voltage of pin ㊹. (Voltage difference below 10 mVdc)
9) Press the PAUSE button of the adjusting remote control unit.

9. 1.5 MHz Deviation Adjustment

Mode	Playback
Signal	Alignment tape: For checking the operation (WR5-5CSP)
Measurement Point	Audio output terminal left or right
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7B (1.5 DEV)
Specified Value	-7.5 ± 0.5 dBs

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Change the data of page: D, address: 7B, and adjust so that the 400 Hz signal level becomes the specified value.
3) Press the PAUSE button of the adjusting remote control unit.

10. 1.7 MHz Deviation Adjustment (CS-33 board)

Mode	Playback
Signal	Alignment tape: AFM stereo For checking operations (WR5-9CS) Bilingual (Monoscope) section
Measurement Point	1. Pin ㉘ of IC401 2. Pin ㊱ of IC401
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	7D (1.7 DEV)
Specified Value	8 ± 0.05 graduation

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Connect the oscilloscope to pin ㉘ of IC401.
3) Adjust the 400 Hz signal amplitude to the 8.0 graduation using the VOLT/DIV knob of the oscilloscope.
4) Connect the oscilloscope to pin ㊱ of IC401.
5) Change the data of page: D, address: 7D, and adjust so that the 1 kHz signal level becomes 8 ± 0.05 graduation. (Adjust with the center of the luminance line width.)
6) Press the PAUSE button of the adjusting remote control unit.

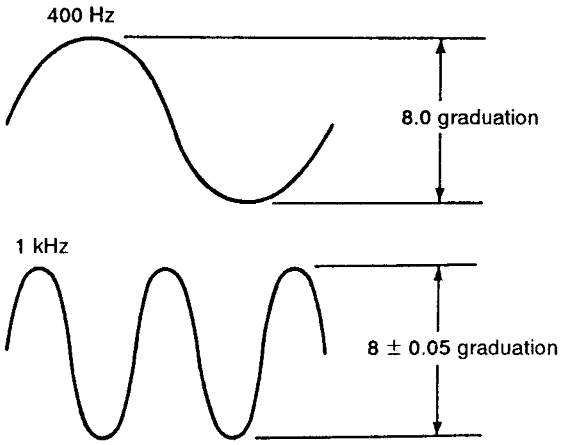


Fig. 9-37.

11. PB Matrix L Adjustment (CS-33 board)

Mode	Self recording/playback
Signal	No signal: EXT MIC JACK 400 Hz, -66 dBs: EXT MIC JACK
Measurement Point	AUDIO JACK
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	79 (PB MATRIX)
Specified Value	Below 20 mVp-p

Adjusting method:

1) Release the protect.
   Page: 1, address: 00, data: 01
2) Input the 400 Hz, -7.5 dBs signal only to the audio input terminal (right). (Insert the shorting plug to the audio input terminal (left).)
3) Record.
4) Remove the input signal.
5) Playback the recorded section.
6) Change the data of page: D, address: 79, and minimize the cross talk component (400 Hz).
7) Press the PAUSE button of the adjusting remote control unit.

12. PB Matrix R Check (CS-33 board)

Mode	Self recording/playback
Signal	400 Hz, -66 dBs: EXT MIC JACK No signal: Audio input terminal (right)
Measurement Point	AUDIO JACK R
Measuring Instrument	Oscilloscope
Specified Value	Below 30 mVp-p

Checking method:

1) Input the 400 Hz, -7.5 dBs signal only to the audio input terminal (left). (Insert the shorting plug to the audio input terminal (right).)
2) Record.
3) Remove the input signal.
4) Playback the recorded section.
5) Check that the cross talk component (400 Hz) is below 30 mVp-p.

13. Overall Level Characteristic, Distortion Check

Mode	Self recording/playback
Signal	400 Hz, -66 dBs: Audio input terminal (left) [right] EXT MIC JACK No signal: Audio input terminal (right) [left]
Measurement Point	AUDIO JACK L•R
Measuring Instrument	Audio level meter and distortion meter
Specified Value	Level: -7.5 ± 2 dBs Distortion rate: Below 0.8% (Note 2)

Note: 1) The [ ] indicates the measuring point during the right channel check
2) Value when the following filter is used

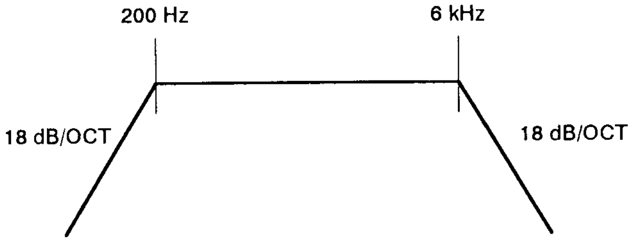


Fig. 9-38.

Checking method:

1) Input the 400 Hz, -7.5 dBs signal only to the audio input terminal (left) [right].
   Note: Be sure to insert the shorting plug to the terminal that was not signal input.
2) Record the signal.
3) Remove the input signal.
4) Playback the recorded section.
5) Check that the 400 Hz signal level of the audio output terminal (left) [right] is -7.5 ± 2 dBs, and that the distortion rate is below 0.8% (Note 2).

14. Separation Check

Mode	Self recording /playback
Signal	No signal: Audio input terminal (left) [right] 1 kHz, –7.5 dBs: Audio input terminal (right) [left]
Measurement Point	AUDIO JACK L•R
Measuring Instrument	Audio level meter (Use an IHF-A curve audio correction filter)
Specified Value	Below –27.5 dBs

Note: The [ ] indicates the measuring point during the right channel check.

Checking method:
1) Insert a shorting plug into the audio input terminal (left) [right], and input a 1kHz, –7.5 dBs signal only to the audio input terminal (right) [left].
2) Record the signal.
3) Remove the input signal.
4) Playback the recorded section.
5) Check that the cross talk level (1 kHz) of the audio output terminal (left) [right] is below –27.5 dBs.

15. Overall Noise Level Check

Mode	Self recording
Signal	No signal: Audio output terminal left and right
Measurement Point	AUDIO JACK L•R
Measuring Instrument	Audio level meter (Use an IHF-A curve auditory correction filter)
Specified Value	Below –62.5 dBs

Note: The [ ] indicates the measuring point during the right channel check.

Checking method:
1) Insert the shorting plug to both left and right of the audio input terminals.
2) Record.
3) Remove the shorting plug.
4) Playback the recorded section.
5) Check that the noise level of the audio output terminal (left) [right] is below –62.5 dBs.

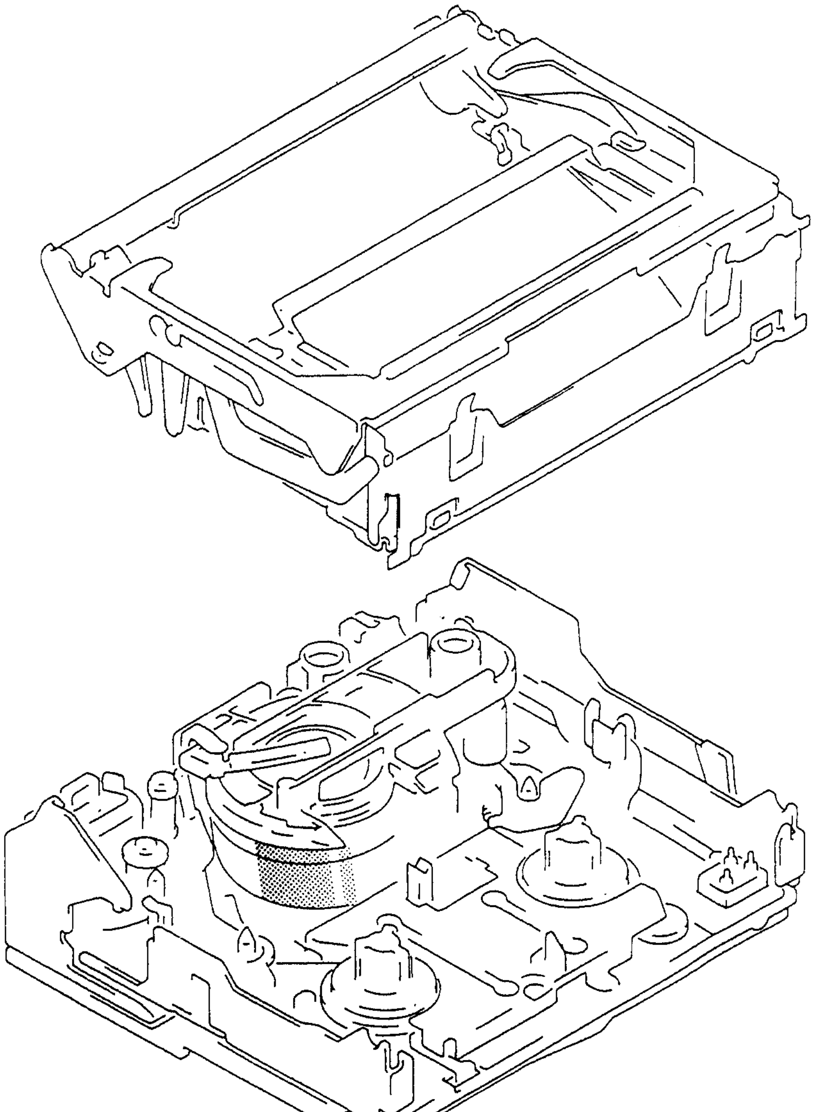
8 mm Video MECHANICAL ADJUSTMENT MANUAL IV

V12995

A MECHANISM

Video 8

File with the SERVICE MANUAL



8 VIDEO RECORDER

SONY®

TABLE OF CONTENTS

Section Title Page

1. PREPARATION FOR MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

1-1. Cassette compartment Assembly ---------- 3
1-2. Operation with Cassette compartment Assembly Removed ---------- 5
1-3. Handling of Mode Selector ---------- 6
1-4. Mode Selector Schematic Diagram ---------- 7
1-5. Mode Selector Parts List ---------- 7

2. PERIODIC CHECK AND MAINTENANCE

2-1. Cleaning of Rotaly Drum Assembly ---------- 8
2-2. Cleaning of Tape Path ---------- 8
2-3. Periodic Check Items ---------- 9
2-4. Service Jigs List ---------- 10

3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

3-1. Retainer, Gooseneck Assembly ---------- 12
3-2. Protector Base Assembly ---------- 13
3-3. Drum Assembly ---------- 14
3-4. Capstan Motor Assembly ---------- 15
3-5. Take-UP Reel Assembly and T-Soft Assembly ---------- 16
3-6. Pinch Arm Assembly ---------- 17
3-7. LS Chassis Assembly ---------- 18
3-8. Guide Base T Assembly and Guide Base S Assembly ---------- 20
3-9. Guide Arm T Assembly and Guide Arm S Assembly ---------- 22
3-10. Supply Reel Table Assembly and TG-1 Arm Assembly ---------- 23
3-11. TG-2 Roller Assembly ---------- 24
3-12. TG-7 Arm Assembly ---------- 25
3-13. LM Motor Assembly ---------- 26
3-14. LS Arm ---------- 27
3-15. M Slider Assembly ---------- 28
3-16. Pinch Press Arm Assembly ---------- 29
3-17. Cam ---------- 30
3-18. GL Arm Assembly ---------- 31
3-19. L Gear A and L Gear B ---------- 32
3-20. Relay Pulley and Change Gear Assembly ---------- 33
3-21. Rotary Upper Drum Replacement ---------- 34
3-22. Adjustment of Tension Regulator Position ---------- 35
3-23. FWD Back Tension Adjustment ---------- 35
3-24. Reel Torque Check ---------- 35

4. TAPE PATH ADJUSTMENT

4-1. Preparation for Adjustment ---------- 37
4-2. Tracking Adjustment ---------- 38
4-3. No.2 Guide (TG-2) Adjustment ---------- 38
4-3-1. No.2 Guide (TG-2) Height Presetting ---------- 38
4-3-2. No.2 Guide (TG-2) Adjustment ---------- 39
4-4. No.7 Guide (TG-7) Adjustment ---------- 39
4-5. CUE and REW Waveform Check ---------- 39
4-6. Check After Adjustment ---------- 40
4-6-1. Tracking Check ---------- 40
4-6-2. Rising Check ---------- 40
4-6-3. Tape Path Check ---------- 40

1. PREPARATION FOR MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

For removal of the cabinet and boards, refer to "Disassembly" in each Service Manual.
Mechanical adjustment is done in the USE mode. (To select the USE mode, refer to "1-3, Handling of Mode Selector".)

1-1. CASSETTE COMPARTMENT ASSEMBLY

1. Removal (Fig. 1)

1) Select the USE mode.
2) Push the part ⓐ of lock arm ❶ toward the arrow 🅐 to unlock from lock guide ❷, and raise the cassette compartment as shown in Fig. a.
3) Remove two screws ❸ and remove the LS frame ❹ toward the arrow 🅑.
4) With the cassette compartment assembly ❺ pushed in arrow 🅒 direction, distort tabs ⓑ and ⓒ of MD side plate toward the arrow 🅓 to disengage from catches ⓓ and ⓔ of cassette compartment assembly respectively.
   In such a case, insert a screwdriver between MD side plate and catch and disengage the tab ⓑ first, then disengage the tab ⓒ for easy removal as shown in Fig. b.
5) Raise the cassette compartment assembly ❺ in the opposite direction of arrow 🅒 until the shafts ⓕ and ⓖ are disengaged, and push left and right side plates toward arrow 🅓 to remove the cassette compartment assembly.

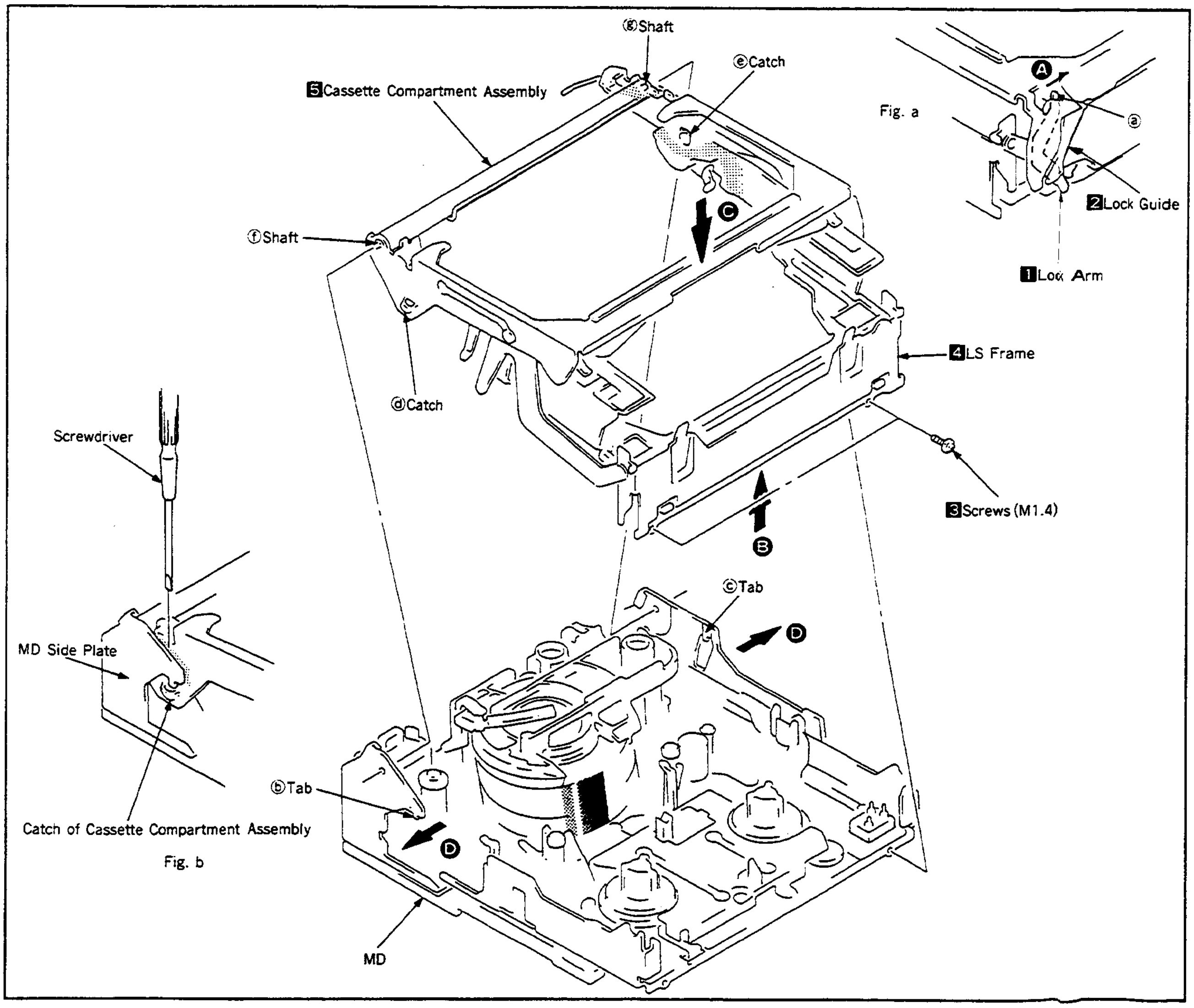

ⓖShaft
ⓔCatch
❺Cassette Compartment Assembly
🅐
ⓐ
❷Lock Guide
❶Lock Arm
ⓕShaft
🅒
❹LS Frame
ⓓCatch
Screwdriver
❸Screws (M1.4)
🅑
ⓒTab
🅓
MD Side Plate
ⓑTab
Catch of Cassette Compartment Assembly
🅓
MD

Fig. a

Fig. b

Fig. 1

2. Mounting (Fig. 2)

1) Select the USE mode.
2) Draw the cassette holder 6 of cassette compartment assembly 5 toward the arrow 🅔, and lower the LS frame 4 toward the arrow 🅕.
3) With the cassette compartment assembly 5 tilted by about 45° against MD, insert shafts ⓕ and ⓖ of cassette compartment assembly into holes ⓗ and ⓘ of MD side plate respectively.
   At this time, the part ⓙ of torsion bar must be positioned on the side ⓚ of LS flexible board (FP-443) (not on the side ⓛ), as shown in Fig. c.
4) Holding holes ⓗ and ⓘ of MD side plate, press the cassette compartment assembly 5 so that its catches ⓓ and ⓔ are engaged with tabs ⓑ and ⓒ of MD side plate. In such a case, the lock arm 1 of cassette compartment assembly must be inserted into a groove in the guide rail 7 on the MD side plate as shown in Fig. d.
5) Insert left and right side plates ⓜ and ⓝ of LS frame 4 inside the LS chassis 8.
6) Push down the cassette compartment to lock.

Note : Make sure that the shafts ⓕ, ⓖ and the tabs ⓞ, ⓟ are set in the MD side plate properly.

7) Tighten two screws 3.

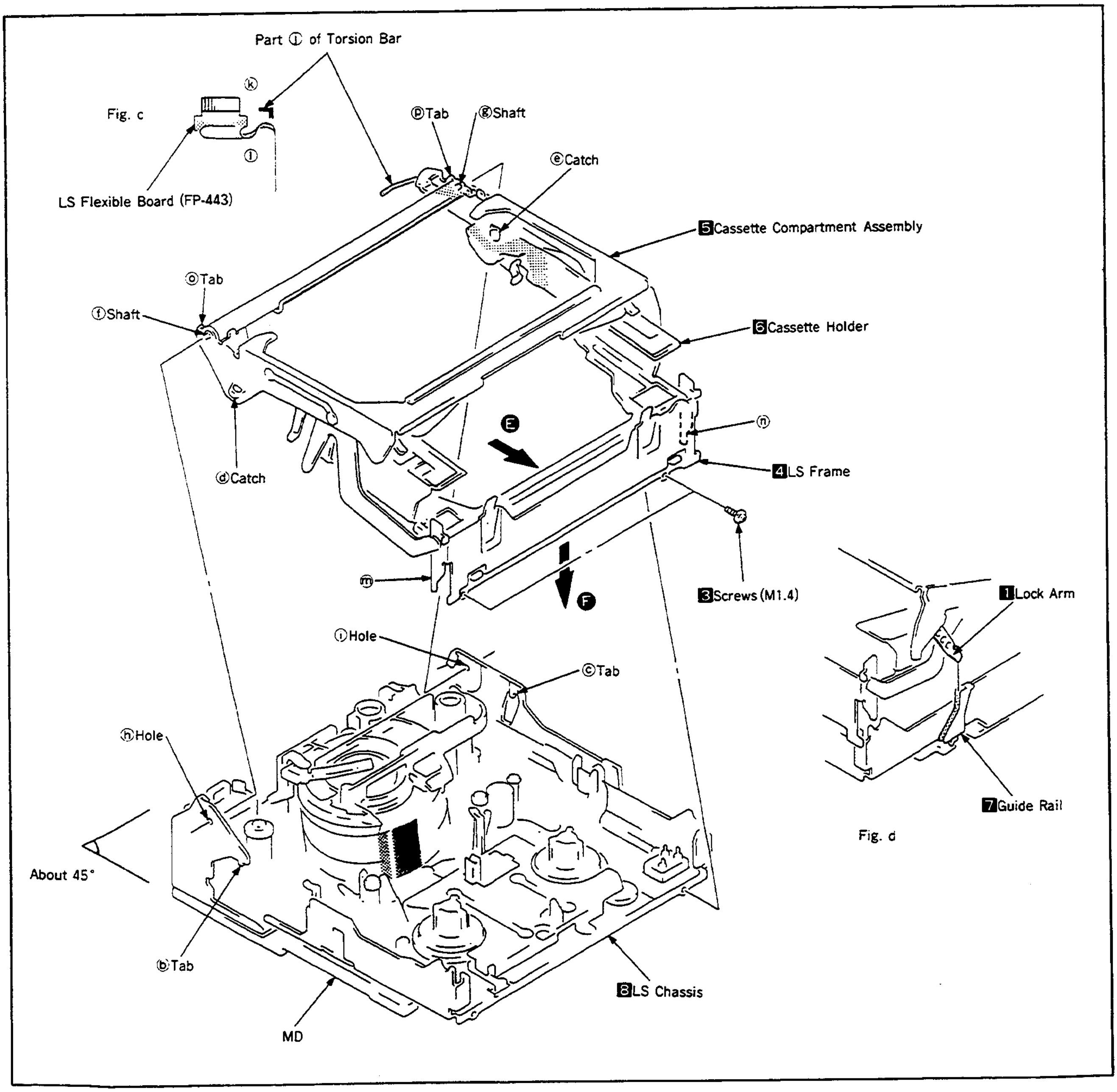

Part ⓙ of Torsion Bar
Fig. c
ⓚ
ⓛ
LS Flexible Board (FP-443)
ⓟTab
ⓖShaft
ⓔCatch
5Cassette Compartment Assembly
ⓞTab
ⓕShaft
6Cassette Holder
ⓝ
🅔
ⓓCatch
4LS Frame
3Screws (M1.4)
ⓜ
🅕
1Lock Arm
ⓘHole
ⓒTab
ⓗHole
7Guide Rail
Fig. d
About 45°
ⓑTab
8LS Chassis
MD

Fig. 2

1-2. OPERATION WITH CASSETTE COMPARTMENT ASSEMBLY REMOVED (Fig. 3)

1) Referring to the Service Manual, supply power with the cabinet and camera removed. (Make the mechanical deck ready to operate.)
2) Place the cap ❷ on the Reflector C ❶.
3) Press the pin of the push switch ❸ (ON state) and fix it with adhesive tape ❹ in that state.

Note : Press the asterisked (∗) pin to set the REC mode.
(This is not required for the other modes.)

4) Push the cassette compartment DOWN switch ❺ in an arrow direction as shown in Fig. a.

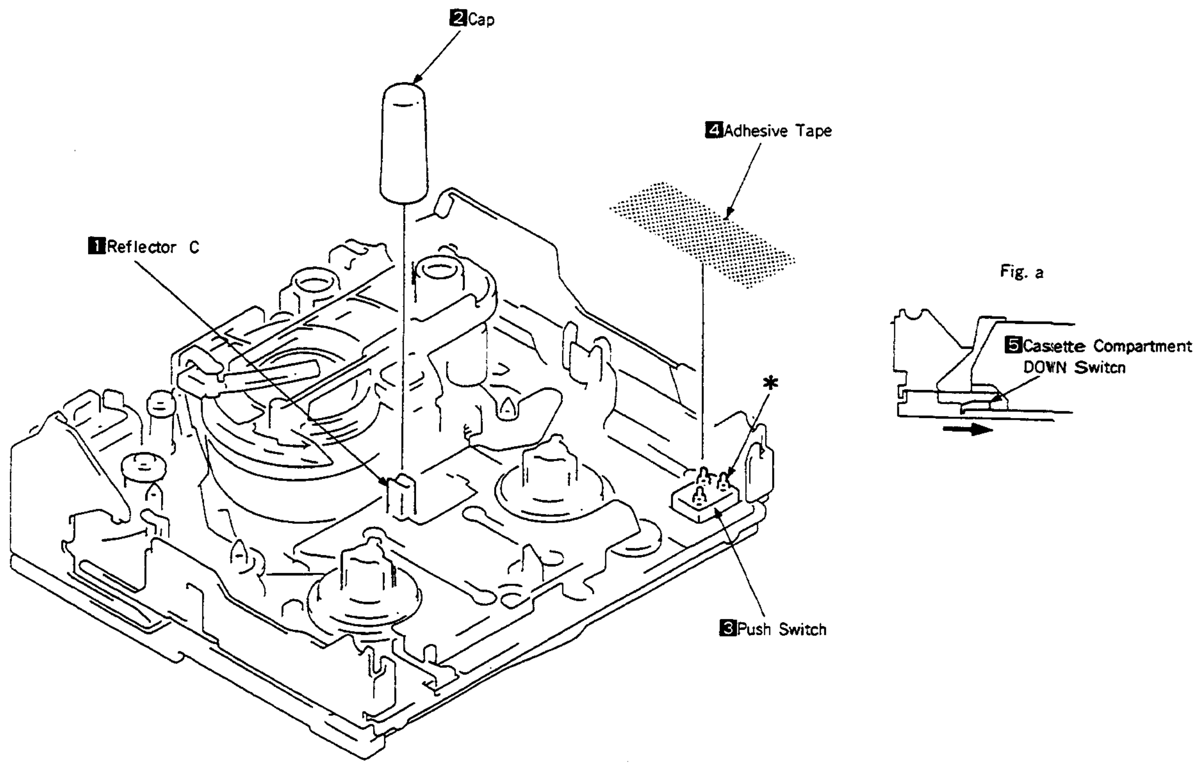

❷Cap
❹Adhesive Tape
❶Reflector C
Fig. a
❺Cassette Compartment DOWN Switch
∗
❸Push Switch

Fig. 3

1-3. HANDLING OF MODE SELECTOR

- Stick the MD process table label to the mode selector IV panel, then mount the panel on the mode selector.
  U,U', FL, O, O' and A mechanisms have different mode indications respectively. Select your disired type. (Fig.4)

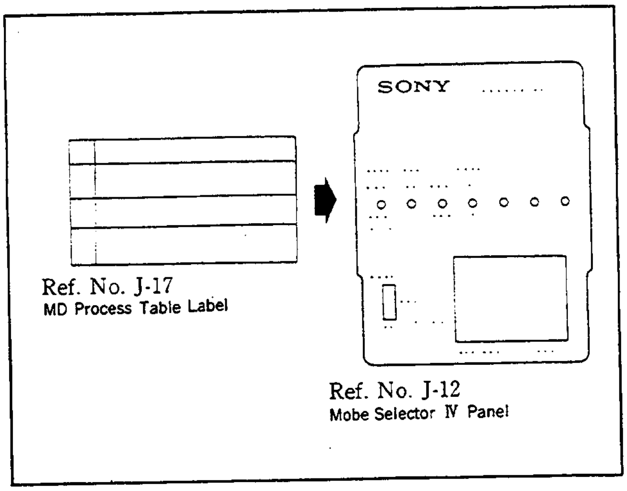

SONY
Ref. No. J-17
MD Process Table Label
Ref. No. J-12
Mobe Selector Ⅳ Panel

Fig. 4

1 Construction (Fig.5)

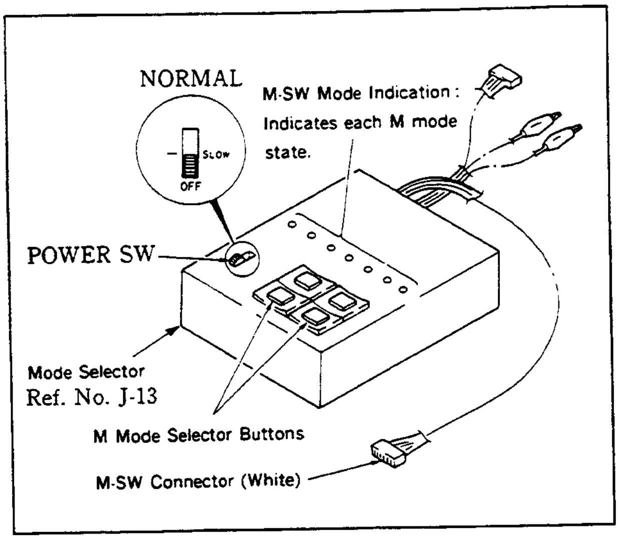

NORMAL
SLOW
OFF
M-SW Mode Indication :
Indicates each M mode
state.
POWER SW
Mode Selector
Ref. No. J-13
M Mode Selector Buttons
M-SW Connector (White)

Fig. 5

2 Connection (Fig.6)

For CCD-FX410 series

1) Insert the FP-425 flexible connector ❶ and M-SW connector ❷ into the mode selector IV conversion connector ❸ respectively.

3. Handling

1) Use the M mode selector buttons only.
2) During mode selection, "BLANK" lights up when no mode is being selected.
3) If the right M mode selector button is kept pressed, END, EJECT, USE, LOAD, READY,TURN, REC and FF light up in that order.
4) When changing over from the FF mode back to the END mode, press the left M mode selector botton to select your desired mode.

For CCD-FX410 series

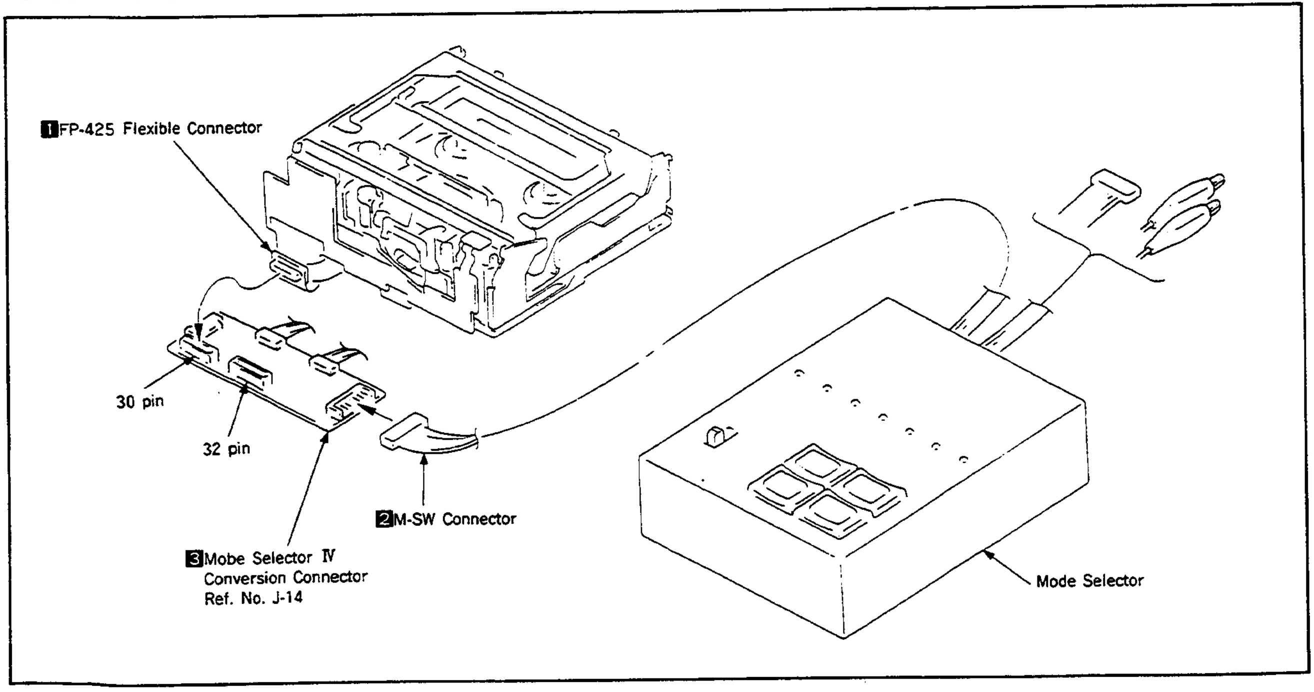
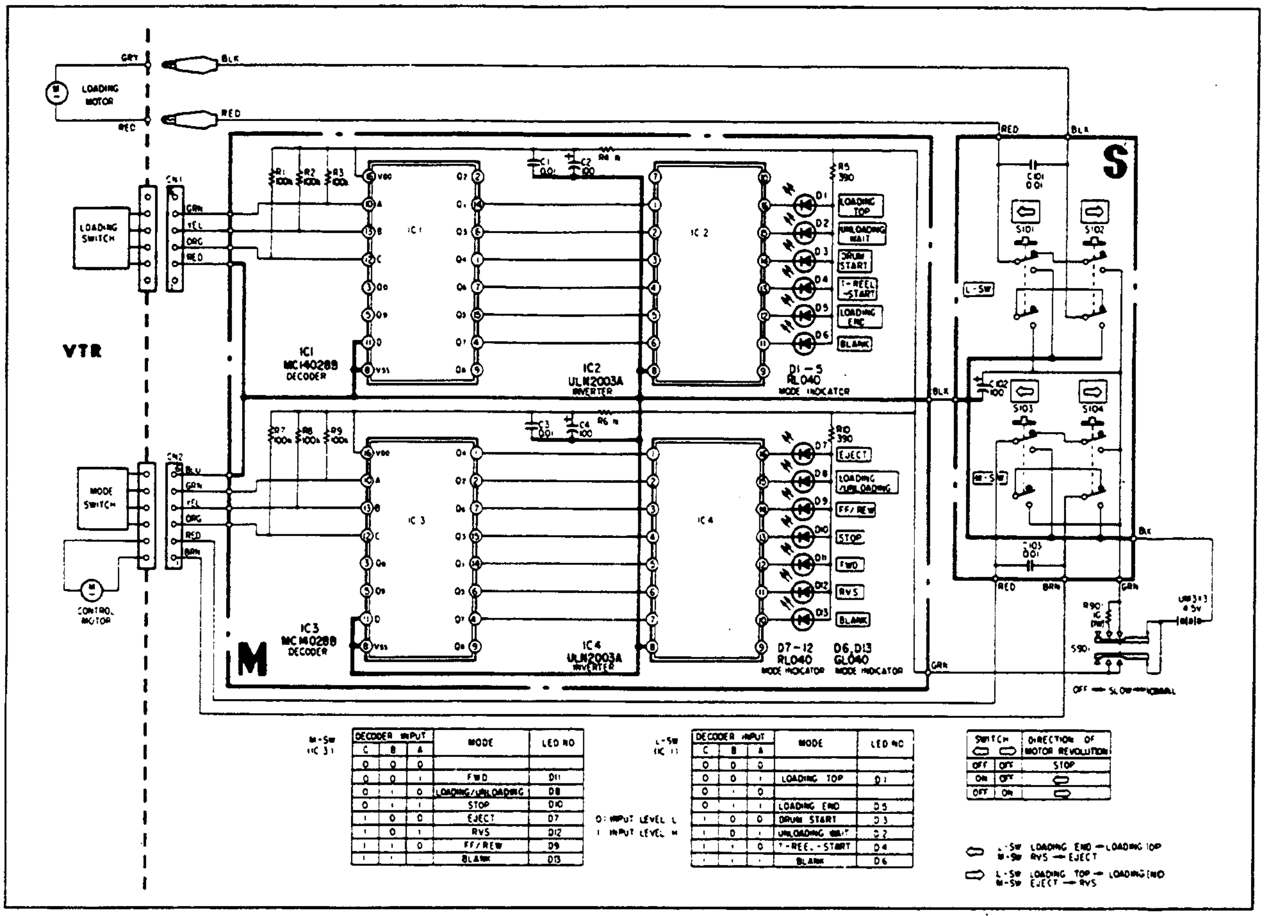

❶FP-425 Flexible Connector
30 pin
32 pin
❷M-SW Connector
❸Mobe Selector Ⅳ
Conversion Connector
Ref. No. J-14
Mode Selector

Fig. 6

1-4. MODE SELECTOR SCHEMATIC DIAGRAM


LOADING MOTOR
GRY
BLK
RED
LOADING SWITCH
CN1
GRN
YEL
ORG
RED
VTR
MODE SWITCH
CN2
BLU
BRN
CONTROL MOTOR
IC1
MC14028B
DECODER
IC2
ULN2003A
INVERTER
IC3
MC14028B
DECODER
IC4
ULN2003A
INVERTER
C1 .001
C2 100
C3 .001
C4 100
R1 100k
R2 100k
R3 100k
R4
R5 390
R6
R7 100k
R8 100k
R9 100k
R10 390
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
LOADING TOP
UNLOADING WAIT
DRUM START
T-REEL START
LOADING END
BLANK
EJECT
LOADING /UNLOADING
FF/REW
STOP
FWD
RVS
BLANK
D1-5
RL040
MODE INDICATOR
D7-12
RL040
MODE INDICATOR
D6, D13
GL040
MODE INDICATOR
M
S
S101
S102
S103
S104
C101 .001
C102 100
C103 .001
L-SW
M-SW
R901
S901
OFF → SLOW → NORMAL
BLK
RED
GRN

M-SW (IC 3)

DECODER INPUT			MODE	LED NO
C	B	A		
0	0	0		
0	0	1	FWD	D11
0	1	0	LOADING/UNLOADING	D8
0	1	1	STOP	D10
1	0	0	EJECT	D7
1	0	1	RVS	D12
1	1	0	FF/REW	D9
1	1	1	BLANK	D13

0 : INPUT LEVEL L
1 : INPUT LEVEL H

L-SW (IC 1)

DECODER INPUT			MODE	LED NO
C	B	A		
0	0	0		
0	0	1	LOADING TOP	D1
0	1	0		
0	1	1	LOADING END	D5
1	0	0	DRUM START	D3
1	0	1	UNLOADING WAIT	D2
1	1	0	T-REEL-START	D4
1	1	1	BLANK	D6

SWITCH ⇦	SWITCH ⇨	DIRECTION OF MOTOR REVOLUTION
OFF	OFF	STOP
ON	OFF	⇦
OFF	ON	⇨

⇦ L-SW LOADING END → LOADING TOP
M-SW RVS → EJECT

⇨ L-SW LOADING TOP → LOADING END
M-SW EJECT → RVS

1-5. MODE SELECTOR PARTS LIST

Ref. No	Part No.	Description		
		CAPACITOR		
C1	1-108-579-00	MILER	0.01μF	50V
C2	1-123-333-00	ELECT	100μF	24V
C3	1-108-579-00	MILER	0.01μF	50V
C4	1-123-333-00	ELECT	100μF	24V
C101	1-108-579-00	MILER	0.01μF	50V
C102	1-123-333-00	ELECT	100μF	24V
C103	1-108-579-00	MILER	0.01μF	50V
		DIODE		
D1	8-719-812-31	DIODE TLR123		
D2	8-719-812-31	DIODE TLR123		
D3	8-719-812-31	DIODE TLR123		
D4	8-719-812-31	DIODE TLR123		
D5	8-719-812-31	DIODE TLR123		
D6	8-719-812-33	DIODE TLG123A		
D7	8-719-812-31	DIODE TLR123		
D8	8-719-812-31	DIODE TLR123		
D9	8-719-812-31	DIODE TLR123		
D10	8-719-812-31	DIODE TLR123		
D11	8-719-812-31	DIODE TLR123		
D12	8-719-812-31	DIODE TLR123		
D13	8-719-812-33	DIODE TLG123A		

Ref. No	Part No.	Description		
		IC		
IC1	8-752-240-28	IC TC4028BP		
IC2	8-752-120-03	IC μPA2003C		
IC3	8-759-240-28	IC TC4028BP		
IC4	8-759-120-03	IC μPA2003C		
		RESISTOR		
R1	1-247-179-00	CARBON	100K	1/4W
R2	1-247-179-00	CARBON	100K	1/4W
R3	1-247-179-00	CARBON	100K	1/4W
R4	1-247-131-00	CARBON	1K	1/4W
R5	1-247-121-00	CARBON	390	1/4W
R6	1-247-131-00	CARBON	1K	1/4W
R7	1-247-179-00	CARBON	100K	1/4W
R8	1-247-179-00	CARBON	100K	1/4W
R9	1-247-179-00	CARBON	100K	1/4W
R10	1-247-121-00	CARBON	390	1/4W
R901	1-214-594-00	METAL	10	1W

2. PERIODIC CHECK AND MAINTENANCE

- Carry out the following maintenance and periodic checks in order not only to fully exhibit the functions and performance of the set, but also for the equipment and tape. After repairing, service the set as follows, regarless of the length of use.

2-1. CLEANING OF ROTARY DRUM ASSEMBLY

1) Gently apply chamois cloth (Ref. No. J-2) soaked in cleaning liquif (Ref. No.J-1) to the rotary drum assembly.
   Clean it by rotating the upper rotary drum assembly slowly counterclockwise by hand.

Note : Do not rotate the motor by power or rotate the upper rotary drum assembly clockwise by hand. Also, the head tip is highly likely to be damaged if the chamois cloth is moved in a pependicular direction to the it. make sure to follow the instructions above for cleaning the rotarydrum assembly.

2-2. CLEANING OF TAPE PATH (Fig.7)

1) In the USE mode, clean the tape running system (TG - 1,- 2,- 3,- 4,- 5, - 6, - 7, pinch roller, and capstan shaft) and the lower drum, using a super fine applicator (Ref. No. J - 3) soaked in the cleaning liquid.

Note : Note that no oil or grease of each link mechanism adheres to the super fine applicator (Ref. No. J - 3).

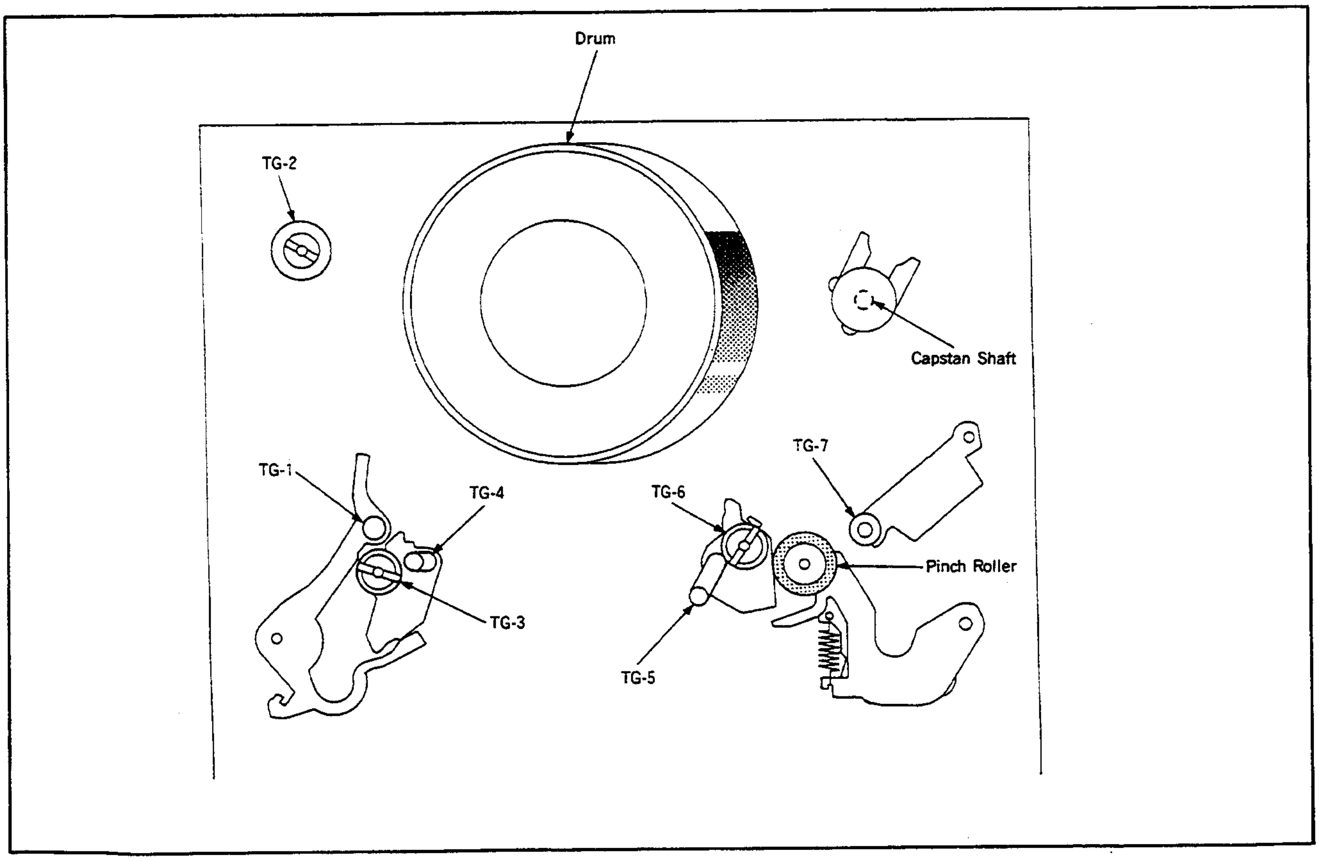


Fig. 7

2-3. PERILDIC CHECK ITEMS

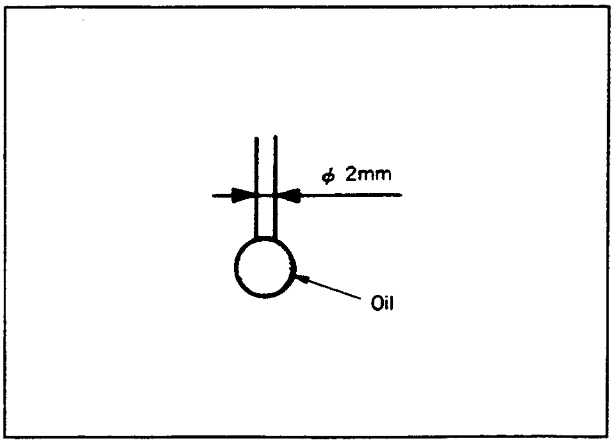
	Location of Maintenance and check	Hours of Use (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Tape trans-portion System	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Be careful of oil
	Cleaning and degaussing of rotary assembly	○	○	○	○	○	○	○	○	○	○	Be careful of oil
Driving System	Relay belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-944-539-01
	Capstan shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Be adsolutely careful not to get oil on the tape path surface.
	Relay pulley shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	A-7040-304-A
Performance Confirmation	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD. RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○ : Cleaning ◎ : Oil ☆ : Confirmation

Note : When overhauling, refer to the items above to replace parts.

Note : Concerning oil

- Be sure to use specified oil. (If you use oil with different visicosity, etc., it may cause troubles.)
  Oil : Part No. 7-661-018-18 (Mitsubishi Diamond Oil Hydrofluid NT - 68)
- When lubricating bearings, be sure use oil free from dust, etc. (If you use oil with dust, etc. contained, it may cause bearings to be worn out or seized.)
- A drip of oil refers to an amount attached to the tip of a ϕ 2mm stick shown in the right figure.

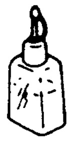


2-4. Service jigs list

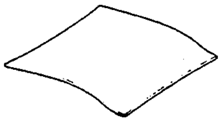
Ref. No.	Name	Part No.	Fixture No.	Usage and Others
J-1	Cleaning fluid	Y-2031-001-0		
J-2	Chamois cloth	2-034-697-00		
J-3	Super fine applicator (Made by NIPPON APPLICATOR, P752D)			
J-4	Head degausser	Widely available		
J-5	Small mirror for adjustment Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape NTSC (WR5-1N) PAL (WR5-1C)	8-967-995-01 8-967-995-06		Tape path
J-9	FWD and RVS winding torque cassette	J-6080-824-A	GD-2086	
J-10	Rotary drum jig	(Attached to the maintenance rotary upper drum)		
J-11	Screwdriver for tape path	J-6082-026-A		For tape guide adjustment
J-12	Mode selector Ⅳ panel	J-6082-105-A		
J-13	Mode selector	J-6080-825-A		For all models
J-14	Mode selector Ⅳ conversion connector	J-6082-167-A		
J-15	FWD B.T. adjusting driver	J-6082-182-A		
J-16	Adjusting remote controller	J-6082-053-B		Tape path (Setting of PATH mode)
J-17	MD process table label	J-6082-166-A		

Other equipment ● Oscilloscope
● Analog tester (20 kΩ)

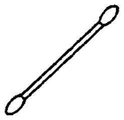
J-1



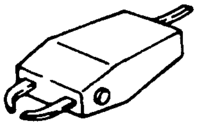
J-2



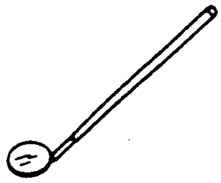
J-3



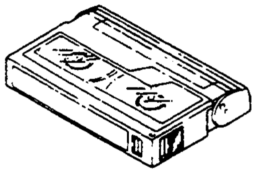
J-4



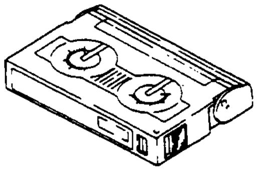
J-5



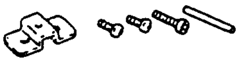
J-6



J-9

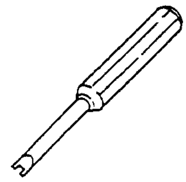


J-10

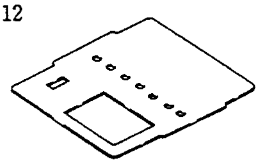


(Attached to the maintenance rotary upper drum)

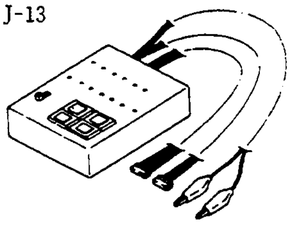
J-11



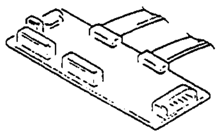
J-12



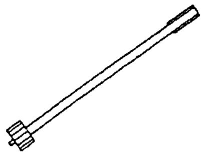
J-13



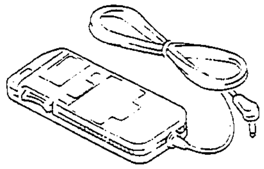
J-14



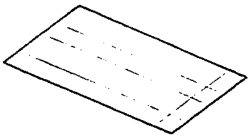
J-15



J-16



J-17



3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note : Use the mode selector (Ref. No. J-13) for the following mechanical checks, adjustments and replacements.

Note : The modes in ☐ are those set by pressing the mode selector buttons.

3-1. RETAINER, GOOSENECK ASSEMBLY (Fig. 8)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Remove a screw ❶.
3) Remove the Retainer, Gooseneck assembly ❷.

2. Mounting

1) Mount the Retainer, Gooseneck assembly ❷ with its two tabs and holes of LS chassis engaged with its hole and a boss of LS chassis.
2) Tighten the screw ❶.
3) Referring to 1-1, mount the cassette compartment assembly.

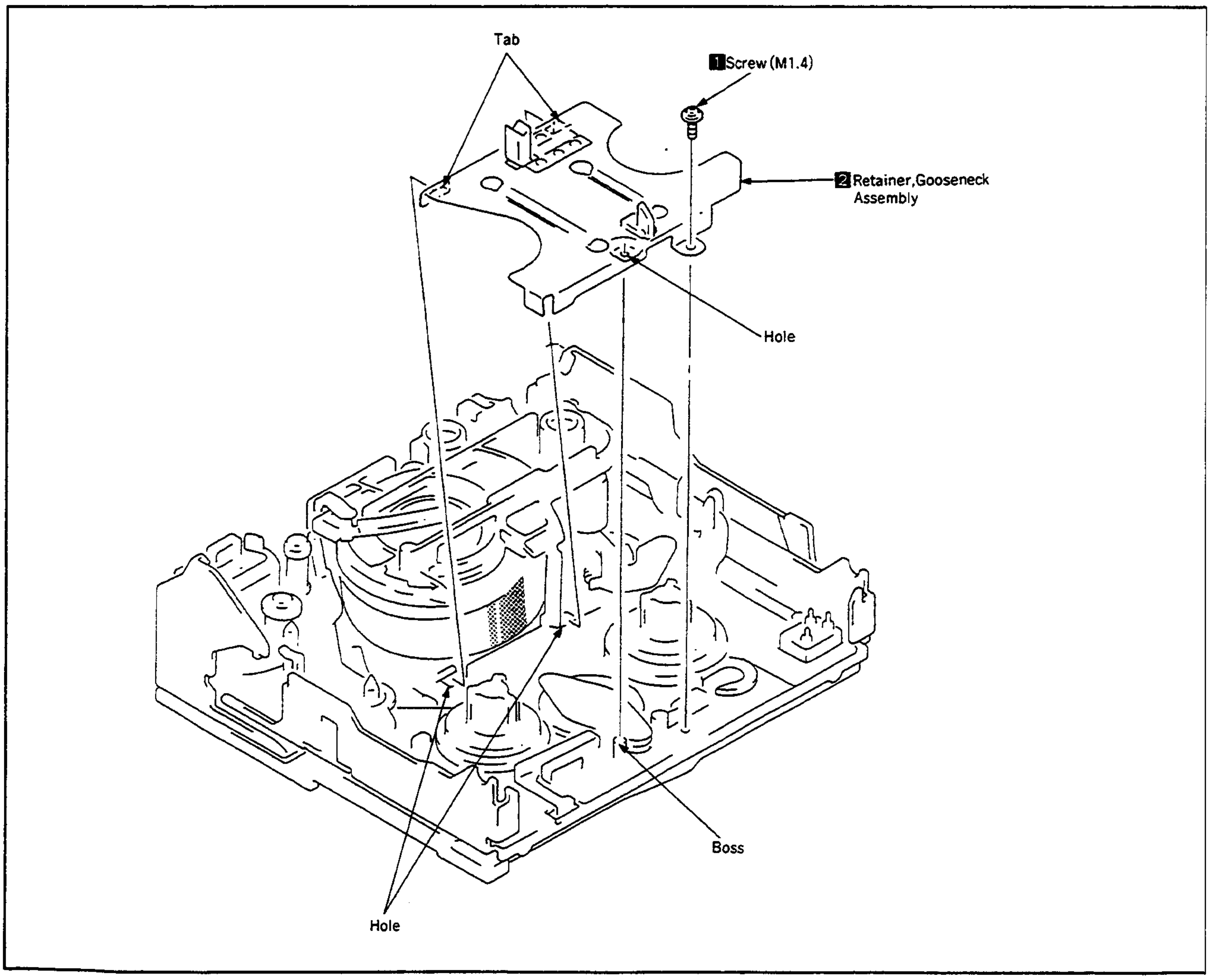


Fig. 8

3-2. PROTECTOR BASE ASSEMBLY (Fig. 9)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Remove two screws 1, then the protector base assembly 2.

2. Mounting

1) Mount the protector base assembly 2 with its three hole engaged with two dowels of mechanical chassis, and a dowel of TG-5 Base Holder 3.
2) Tighten two screws 1.
3) Referring to 1-1, mount the cassette compartment assembly.

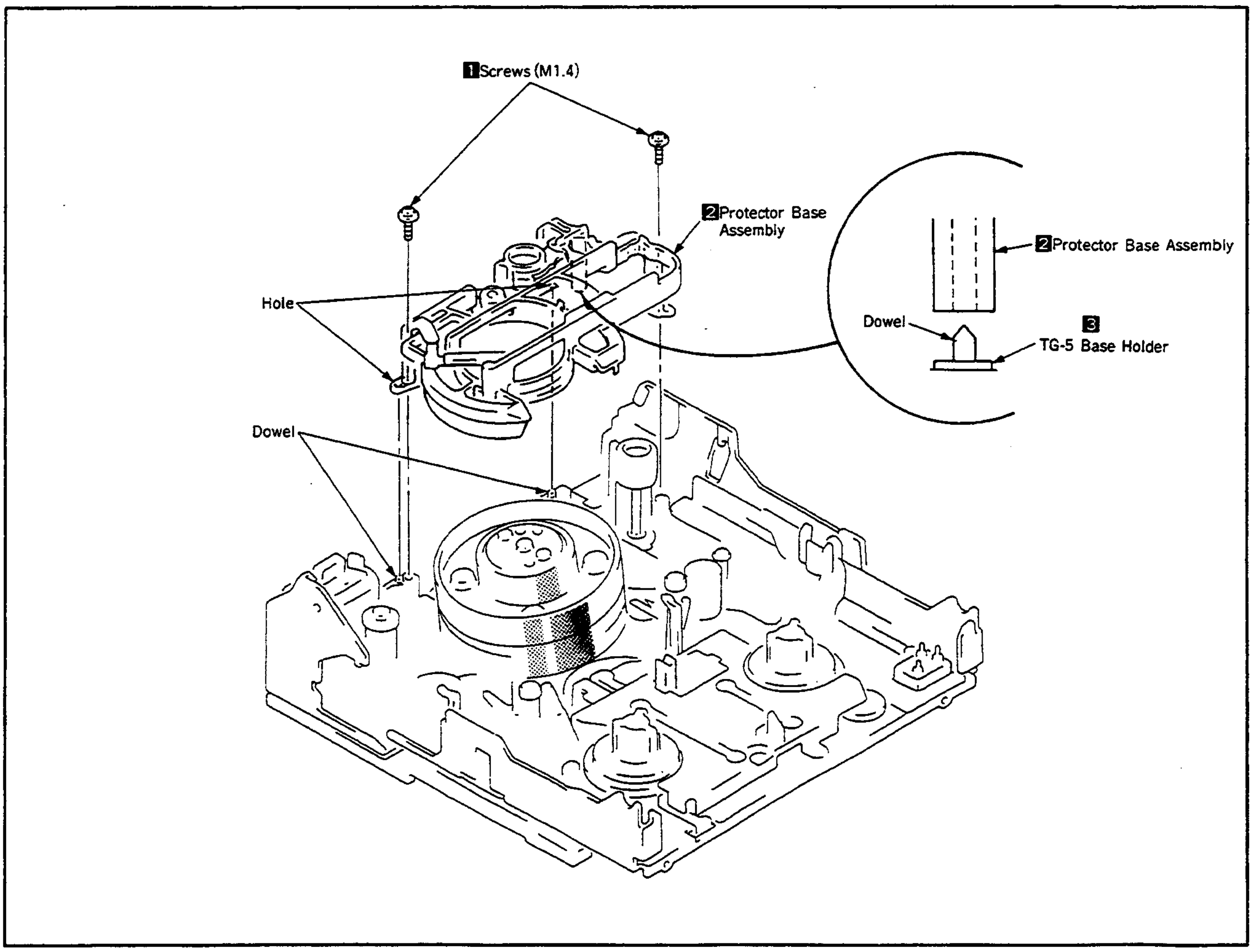

1 Screws (M1.4)
2 Protector Base Assembly
Hole
Dowel
2 Protector Base Assembly
Dowel
3 TG-5 Base Holder

Fig. 9

3-3. DRUM ASSEMBLY (Fig. 10)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-2, remove the protect base assembly.
3) Disconnect the connector of FP-444 flexible board ❶ on the back of MD.
4) Remove three screw ❷, then the drum assembly ❸.

Note : Do not touch the outer surfaced of drum (hold portions 🅐 and 🅑 of drum).

2. Mounting

1) Mount the drum assembly ❸ while aligning with two dowels ⓐ of chassis.

Note : Do not touch the outer surfaced of drum (hold portions 🅐 and 🅑 of drum).

2) Tighten three screw assemblies ❷ in the order of 1, 2 and 3.

Note : Tighten lightly not to deform the drum lead.

3) Apply a screw locking agent to prevent screws ftom loosening.

Note : In tightening the screws, pushing down the drum extremely will allow the drum to float up.

4) Connect the connector of FP-444 flexible board ❶ on the back of MD.
5) Referring to 3-2, mount the protect base assembly.
6) Referring to 1-1, mount the cassette compartment assembly.

Note : After mounting, make tape path adjustment in Section 4.

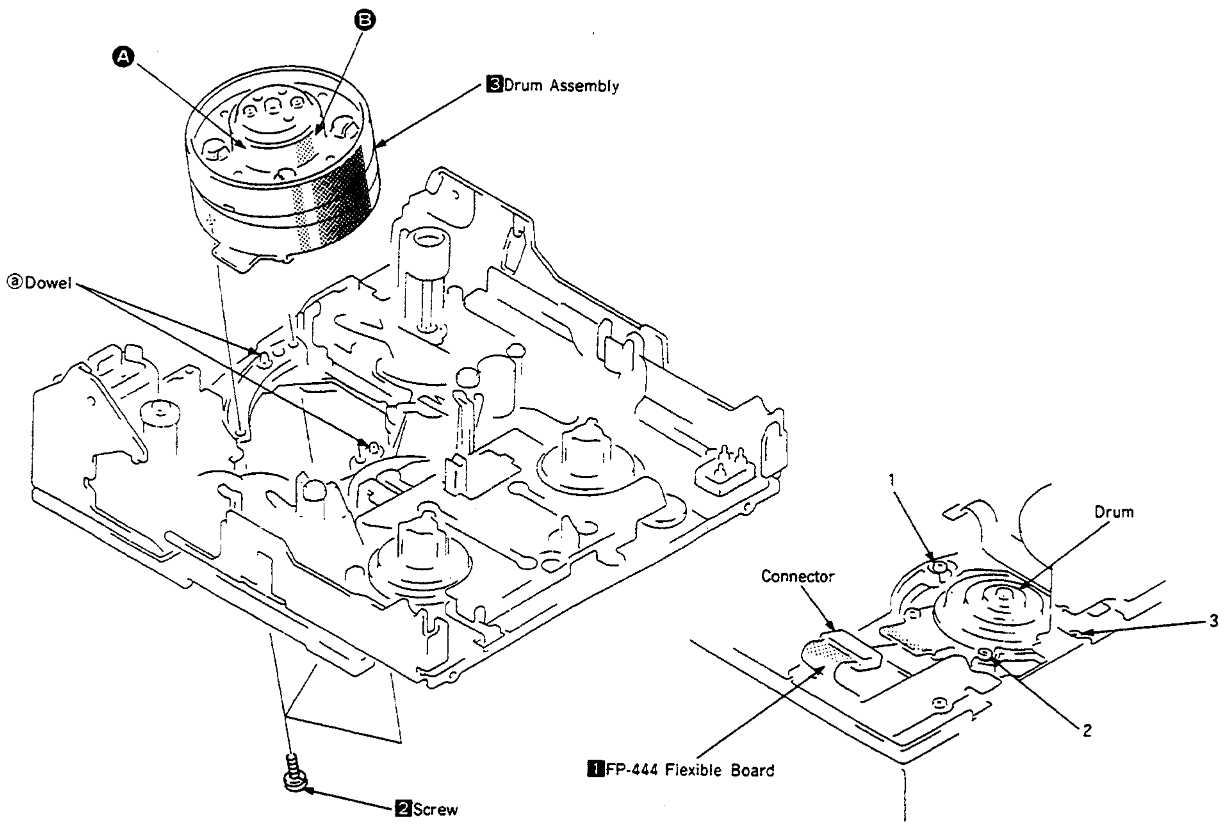


Fig. 10

3-4. CAPSTAN MOTOR ASSEMBLY (Fig. 11)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Remove two screw 1, then the capstan cover 2.
3) Remove the screw 3, then the capstan motor assembly 4.

2. Mounting

1) Mount the capstan motor assembly 4 and tighten the scre 3.

Note : In mounting the capstan motor assembly, hold lightly the capstan motor assembly until the rotor gear aligns with the change gear Assy, then insert fully the assembly when both gears are engaged completely by manually rotating the rotor. (Take care not to damage the change gear Assy.)

2) Mount the capstan cover 2 and tighten two screws 1.
3) Referring to 1-1, mount the cassette compartment assembly.

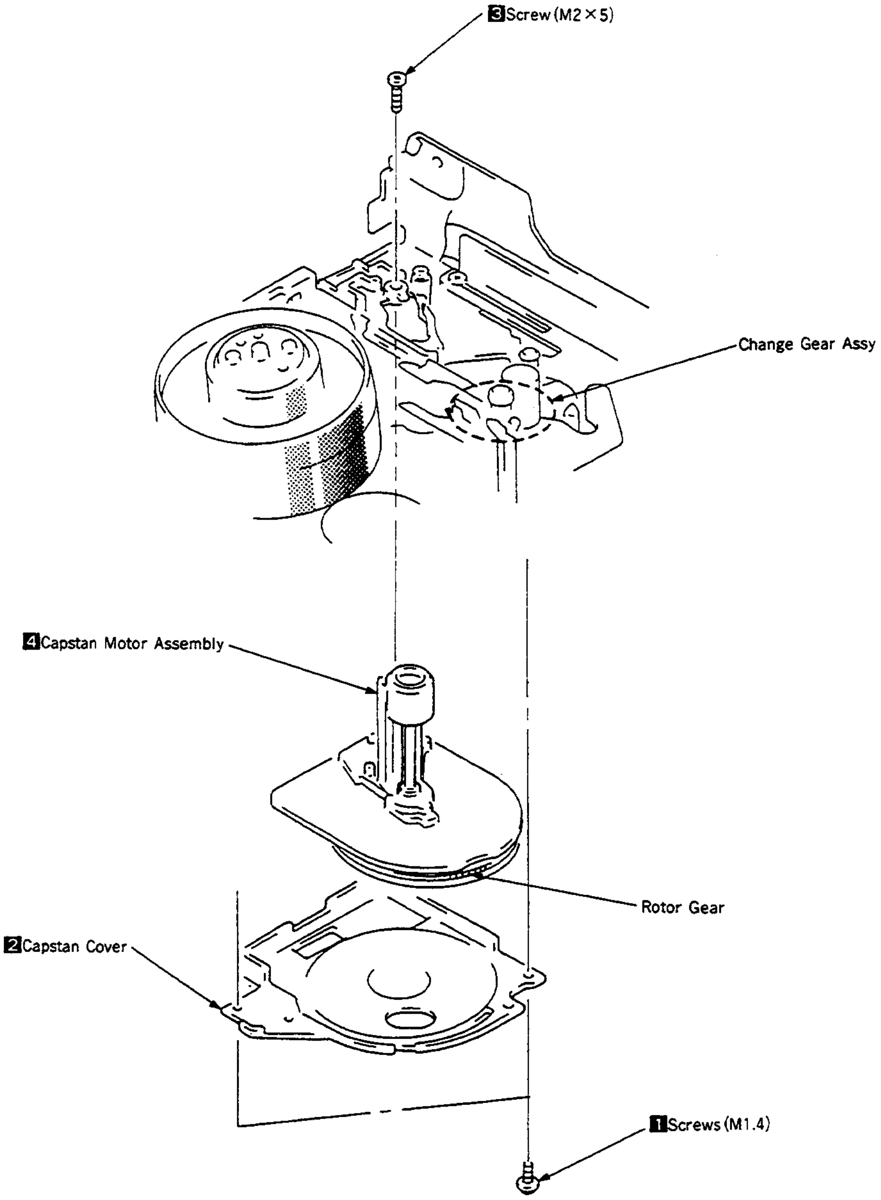

3 Screw (M2 × 5)
Change Gear Assy
4 Capstan Motor Assembly
Rotor Gear
2 Capstan Cover
1 Screws (M1.4)

Fig. 11

3-5. TAKE-UP REEL TABLE ASSEMBLY AND T- SOFT ASSEMBLY (Fig. 12)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Remove the take-up reel table assembly 1.
4) Remove the T soft assembly 2, then the T soft arm 3.

2. Mounting

1) Mount the T soft arm 3 with its long hole ⓒ engaged with the boss ⓓ of LS chassis.
2) Mount the T soft assembly 2 with its tab ⓐ engaged with a square hole ⓑ of T soft arm, as shown in Fig. a.
3) Mount the take-up reel table assembly 1 and rotate it toward the arrow Ⓐ to be latched with T hard claw.
4) Referring to 3-1. mount the Retainer, Gooseneck assembly.
5) Referring to 1-1, mount the cassette compartment assembly.

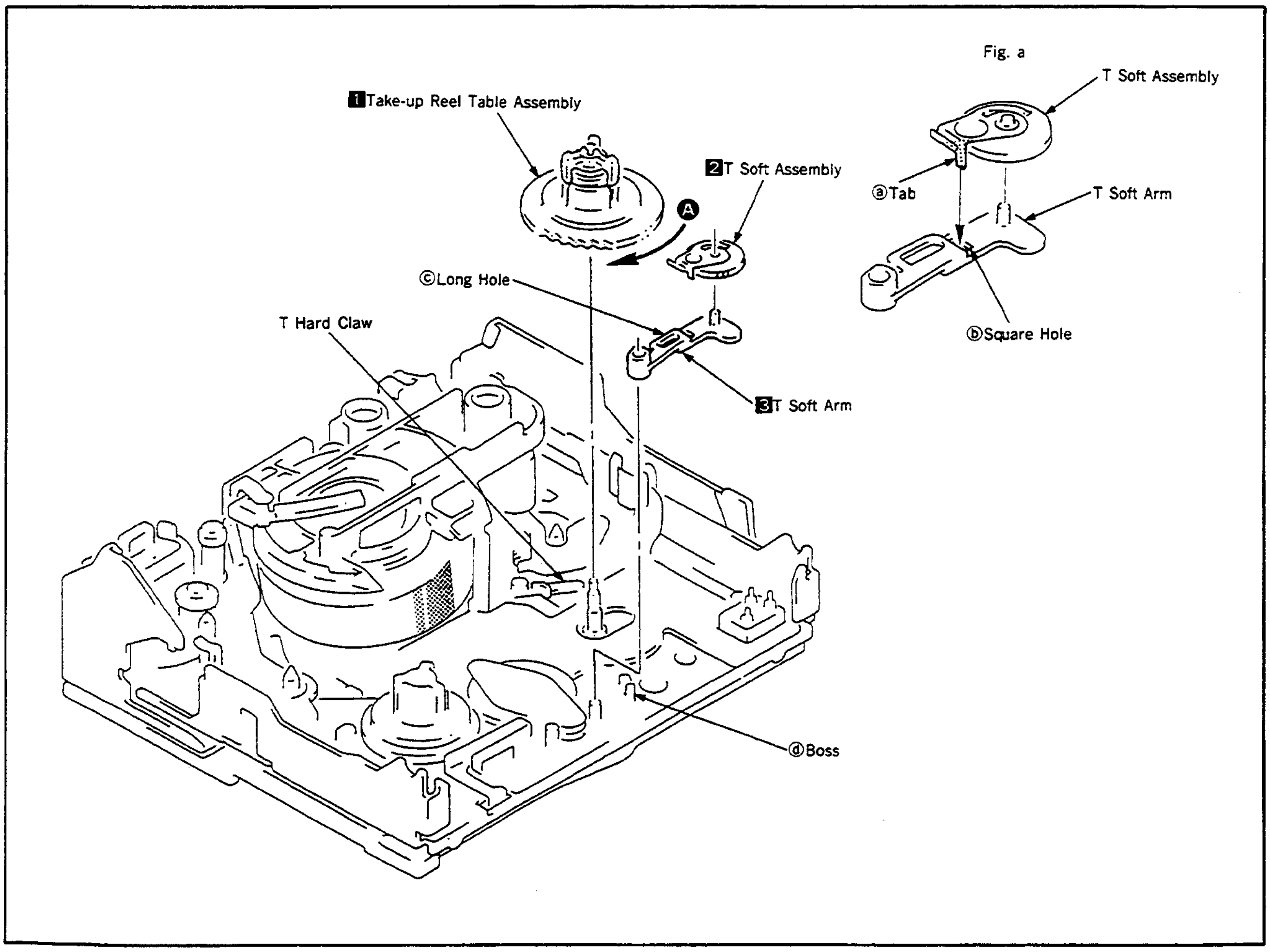


Fig. a
T Soft Assembly
ⓐTab
T Soft Arm
ⓑSquare Hole
1 Take-up Reel Table Assembly
2 T Soft Assembly
Ⓐ
ⓒLong Hole
T Hard Claw
3 T Soft Arm
ⓓBoss

Fig. 12

3-6. PINCH ARM ASSEMBLY (Fig. 13)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Select the READY mode.
3) Remove a washer ❶, then the pinch arm assembly ❷.

2. Mounting

1) Select the READY mode.
2) Hooking a spring of pinch arm assembly ❷ to the casse positioning boss on the chassis, mount the pinch arm asser bly on the shaft of LS chassis assembly as shown in Fig. a.
3) Push in the spring with tweezers up to the root of boss as shown in Fig. b.
4) Mount the washer ❶.
5) Referring to 1-1, mount the cassette compartment assembly.

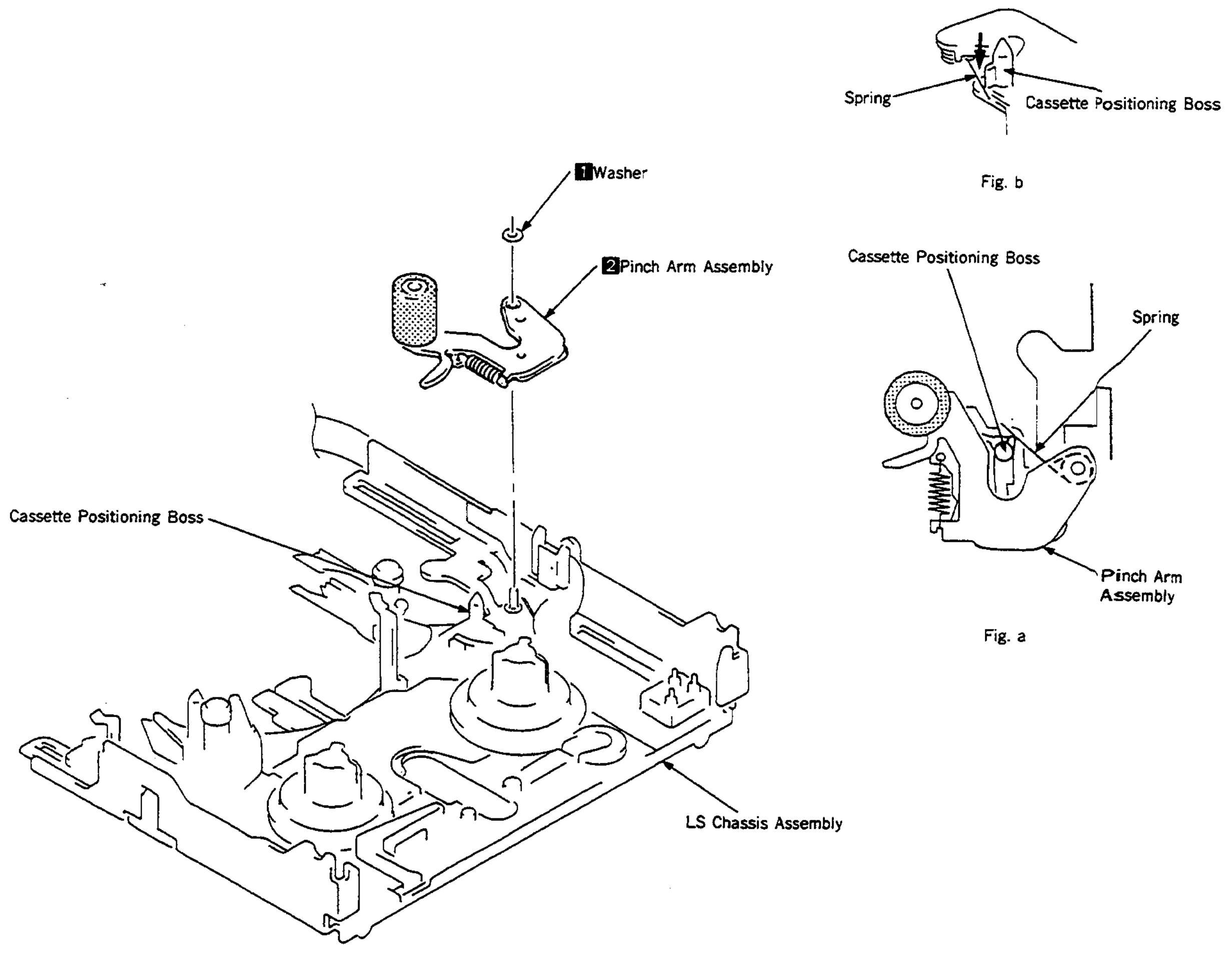

Spring
Cassette Positioning Boss
Fig. b
❶Washer
❷Pinch Arm Assembly
Cassette Positioning Boss
Spring
Pinch Arm Assembly
Fig. a
Cassette Positioning Boss
LS Chassis Assembly

Fig. 13

LS CHASSIS ASSEMBLY (Fig. 14)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Remove a screw 1, TG-5 base holder 2, and LS flexible board 3.
5) Remove a lock washer 4, then the gooseneck as sembly 5.
6) Remove four screws 6, then the LS chassis assembly 7.

2. Mounting

1) Select the USE mode.
2) Confirm that the T hard claw and the outsert on the back of LS chassis are positioned as shown in Fig. a. (The T hard claw must be higher than corner ⓐ of chassis hole.) If not high, turn the outsert in the arrow direction while pushing the T hard claw from LS chassis to the chassis.
3) Sliding the GL slider, align the top edge of long hole ⓑ in GL slider with the edge face ⓒ of LS chassis hole as shown in Fig. b.
4) Mount the LS chassis assembly 7 on the chassis.

Note : At this time, aligh a dowel ⓓ on LS chassis with a long hole ⓔ of No.7 guide on chassis, a long hole of GL slider with a GL arm pin, a groove of LS cam plate with an LS arm pin respectively as shown in Fig. c and d.

5) Tighten four screws 6.
6) Mount the LS flexible board 3 and TG-5 base holder 2,then tighten the screw 1.
7) Mount the Gooseneck assembly 5 and fix it with a washer 4.

Note : Using the mode selector, confirm that loading and unloading are performed smoothly.

8) Referring to 3-2, mount the protector base assembly.
9) Referring to 3-1, mount the Retainer, Gooseneck assembly.
10) Referring to 1-1, mount the cassette compartment assembly.

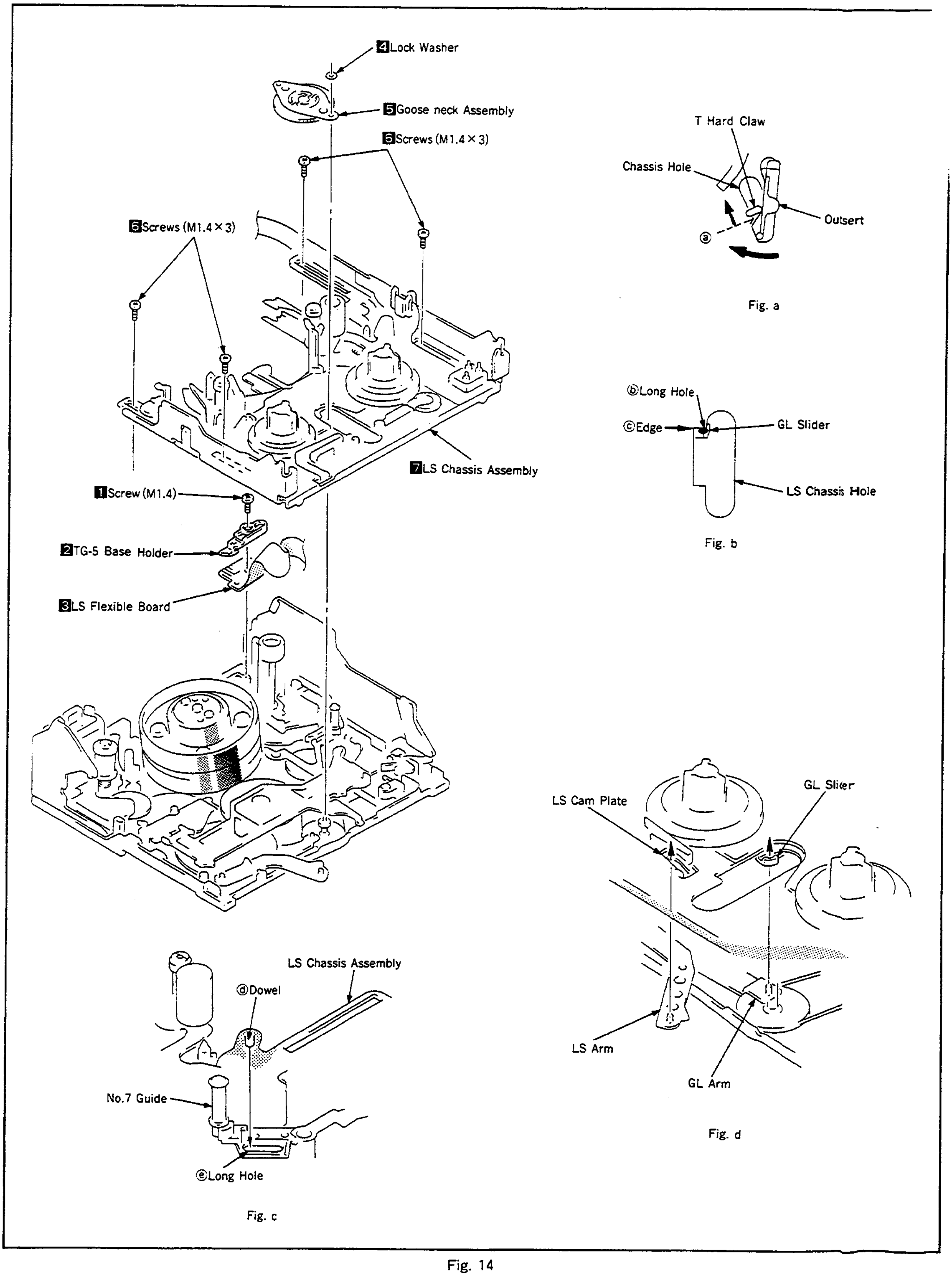

❹Lock Washer
❺Goose neck Assembly
❻Screws (M1.4×3)
❻Screws (M1.4×3)
❼LS Chassis Assembly
❶Screw (M1.4)
❷TG-5 Base Holder
❸LS Flexible Board
T Hard Claw
Chassis Hole
Outsert
ⓐ
ⓑLong Hole
ⓒEdge
GL Slider
LS Chassis Hole
LS Chassis Assembly
ⓓDowel
No.7 Guide
ⓔLong Hole
LS Cam Plate
GL Slider
LS Arm
GL Arm

Fig. a

Fig. b

Fig. c

Fig. d

Fig. 14

3- GUIDE BASE T ASSEMBLY AND GUIDE BASE S ASSEMBLY (Fig. 15, 16)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Push in the GL slider [1] toward the arrow Ⓐ, and remove the guide base T assembly [2] and guide base S assembly [3] from the guide rail respectively as shown in Fig. 15.

Note : Do not invert the LS chassis up side down, otherwise the T reel table assembly, T soft arm and T sofr assembly will drop. Also, take care not to allow the S reel table to float up, or the tension regulator string bends. (Refer to 3-5 T Reel Table Assembly and T Soft Assembly, and 3-10 S Reel Table Assembly and TG-1 Arm Assembly.)

6) Turning the guide base T assembly [2] and guide base S assembly [3] respectively, align the shaft to hole to remove as shown in Fig. a.

2. Mounting

1) Turning the guide base T assembly [2] and guide base S assembly [3] respectively, align the shaft with a hole to mount as shown in Fig. a (Fig. 15).
2) On the back side of chassis, insert the guide arm T assembly [4], guide arm S assembly [5] and GL slider [1] from position shown in Fig.b to position shown in Fig. c. Also, aligning the guide base T assembly [2] and guide base S assembly [3] with the respective guide rails, push in the GL slider [1] toward the arrow Ⓑ as shown in Fig. 16.

Note : Do not invert the LS chassis up side down, otherwise the T reel table assembly, T soft arm and T soft assembly will drop. Also, take care not to allow the S reel table to float up, or the tension regulator string bends. (Refer to 3-5 T Reel Table Assembly and T Soft Assembly, and 3-10 S Reel Table Assembly and TG-1 Arm Assembly.)

3) Referring to 3-7, mount the LS chassis assembly.
4) Referring to 3-2, mount the protector base assembly.
5) Referring to 3-1, mount the Retainer, Gooseneck assembly.

Note : At this time, confirm that the T soft assembly is surely engaged with the T soft arm.

6) Referring to 1-1, mount the cassette compartment assembly.

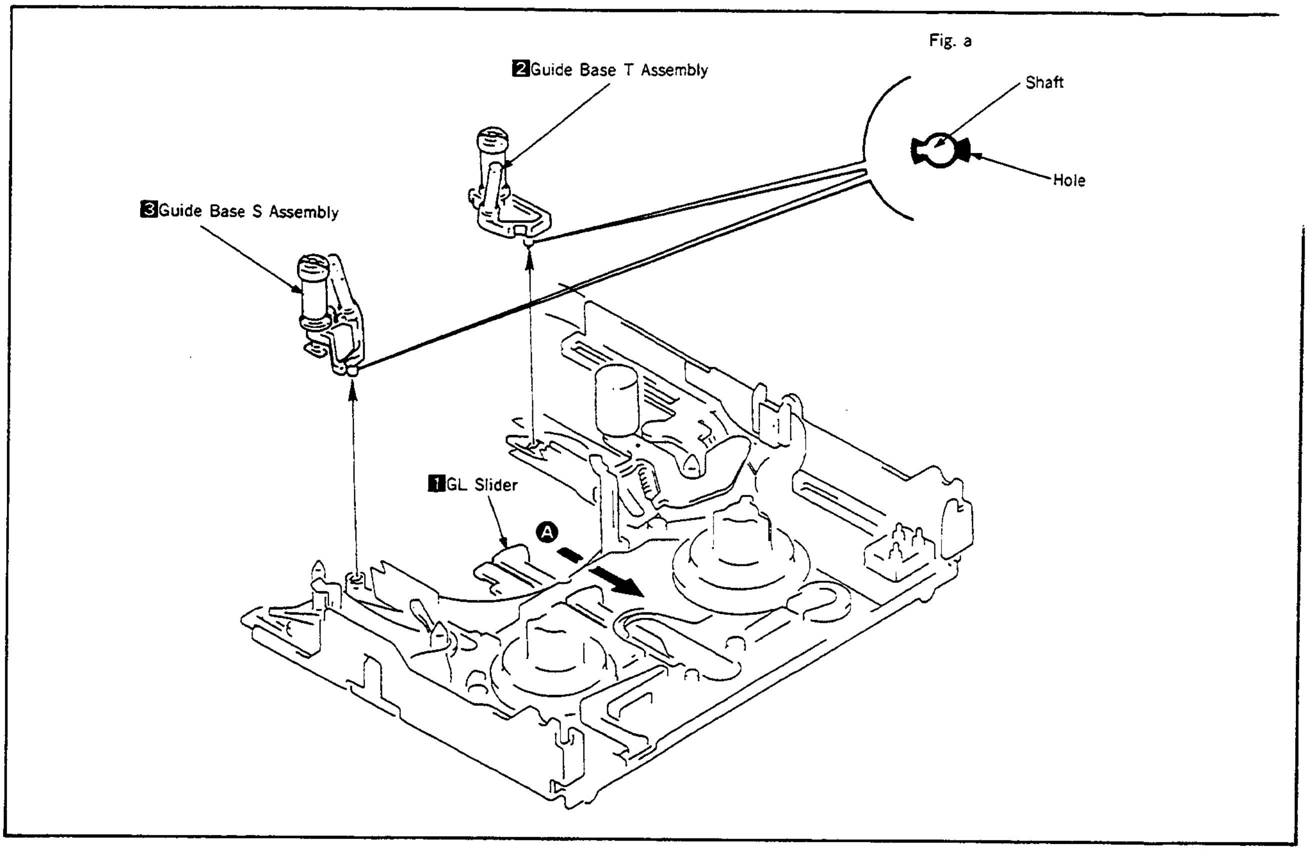


Fig. a
2 Guide Base T Assembly
Shaft
Hole
3 Guide Base S Assembly
1 GL Slider
A

Fig. 15

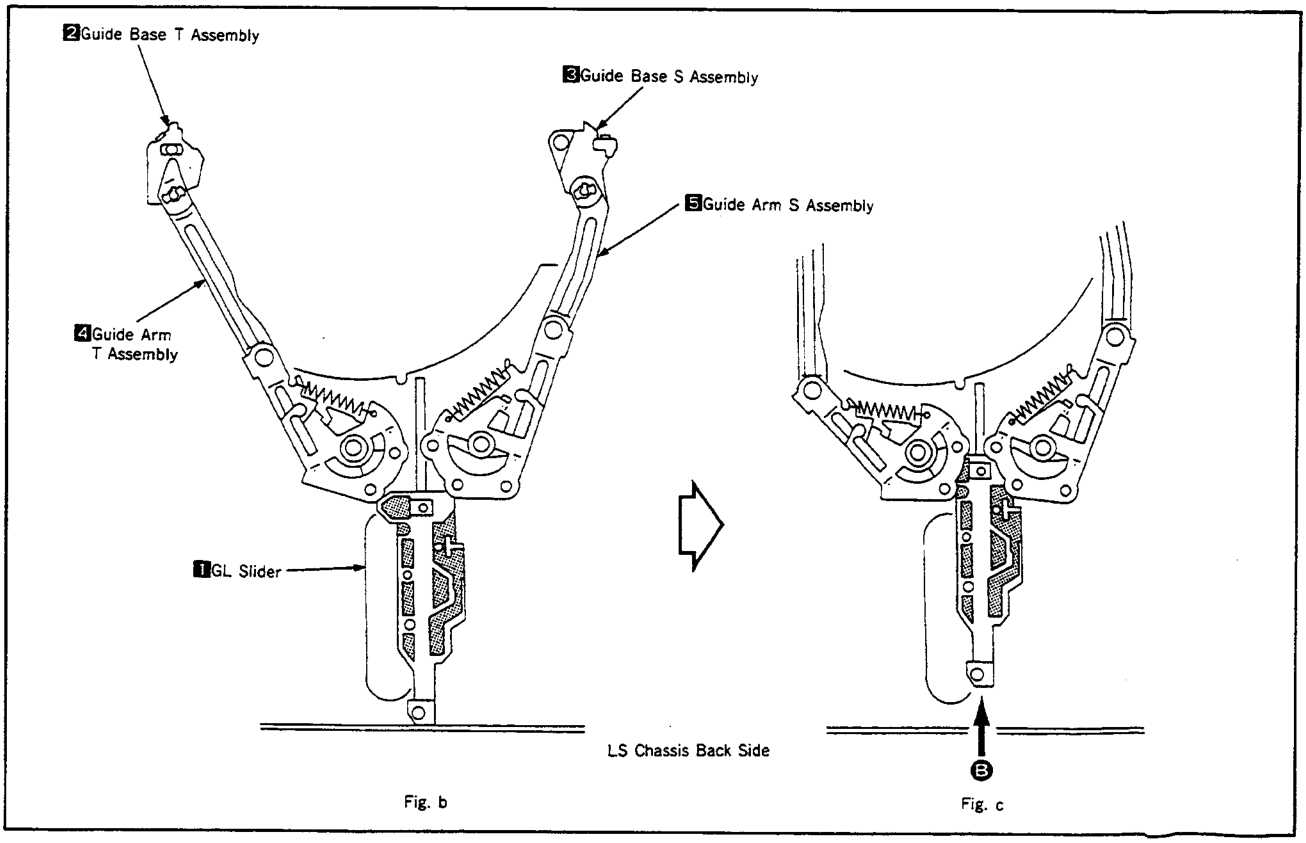

2 Guide Base T Assembly
3 Guide Base S Assembly
5 Guide Arm S Assembly
4 Guide Arm T Assembly
1 GL Slider
LS Chassis Back Side
B

Fig. b

Fig. c

Fig. 16

3 GUIDE ARM T ASSEMBLY AND GUIDE ARM S ASSEMBLY (Fig. 17)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Referring to 3-8, remove the guide base T assembly and guide base S assembly.
6) Remove lock washers 1, then the guide arm T assembly 2 and guide arm S assembly 3 respectively from the back side of chassis.

Note : Do not invert the LS chassis up side down, otherwise the T reel table assembly, T soft arm and T soft assembly will drop. Also, take care not to allow the S reel table to float up, or the tension regulator string bends. (Refer to 3-5 T Reel Table Assembly and T Soft Assmbly, and 3-10 S Reel Table Assembly and TG-1 Arm Assembly.)

2. Mounting

1) Mount the guide arm T assembly 2 and guide arm S assembly 3, then fix them with a lock washer 1 respectively.

Note : Do not invert the LS chassis up side down, otherwise the T reel table assembly, T soft arm and T soft assembly will drop. Also, take care not to allow the S reel table to float up, or the tension regulator string bends. (Refer to 3-5 T Reel Table Assembly and T Soft Assembly, and 3-10 S Reel Table Assembly and TG-1 Arm Assembly.)

2) Referring to 3-8, mount the guide base T assembly, guidebase S assembly and GL slider.
3) Referring to 3-7, mount the LS chassis assembly.
4) Referring to 3-2, mount the protector base assembly.
5) Referring to 3-1, mount the Retainer, Gooseneck assembly.
6) Referring to 1-1, mount the cassette compartment assembly.

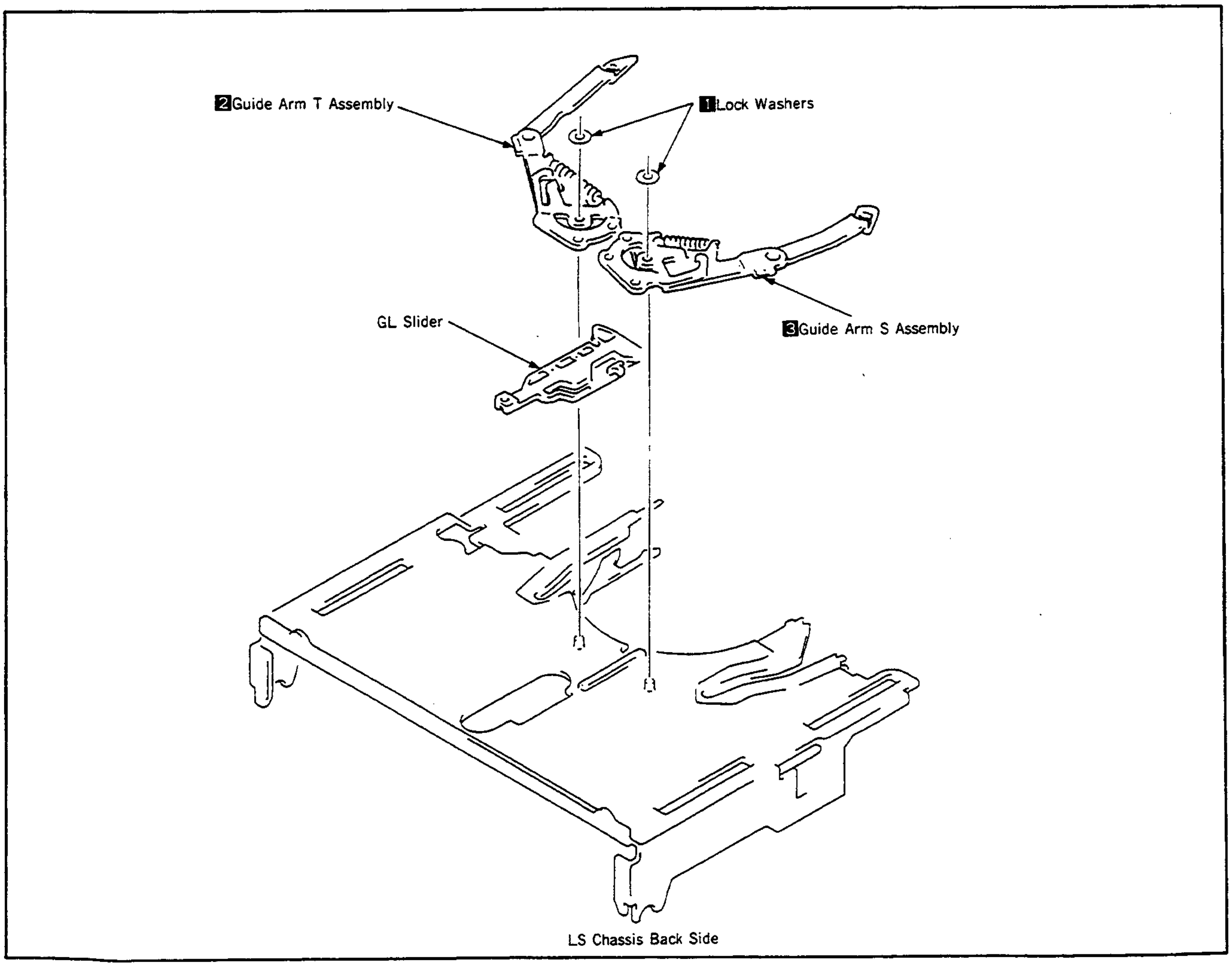


Fig. 17

3-10. SUPPLY REEL TABLE ASSEMBLY AND TG-1 ARM ASSEMBLY (Fig. 18)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Referring to 3-8, remove the guide base S assembly.
6) Remove a screw 1, then the string 2 from the supply reel table assembly 3. For easy removal of string block 4, insert a flat-blade screwdriver into a groove ⓐ and push it up (Fig. a).
7) Remove the supply reel table assembly 3.
8) Remove a tension coil spring 5.
9) Turn the TG-1 arm assembly 6 up to a portion ⓒ of LS chassis hole in the arrow Ⓐ direction so that its tab ⓑ can be disengaged (Fig. b).

2. Mounting

1) Pushing the S soft brake 7 toward the arrow Ⓑ, mount thesupply reel table assembly 3.
2) Route the string 2 under the TG-1 arm asembly 6, andinsert the tab ⓑ of TG-1 arm assembly into the LS chassis hole ⓒ, then turn the TG-1 arm assembly in the reverse direction of arow Ⓐ (Fig. b).
3) Wind the string 2 along the groove of supply reel t assembly 3 (Fig. a).

Note : Do not curl the string extremely. Also, avoid adhesion oil, otherwise the image will be distorted.

4) Using the FWD B.T. adjusting driver (Ref. No. J-15), shift the string block 4 toward the arrow Ⓒ and tighten the screw 1 (Fig. a).
5) Engage the tension coil spring 5 to the chassis hook.

Note : Confirm that the string 2 is surely wound around the groove of supply reel table assembly 3 (Fig.a).

6) Referring to 3-8, mount the guide base S assembly.
7) Referring to 3-7, mount the LS chassis assembly.
8) Referring to 3-2, mount the protector base assembly.
9) Referring to 3-1, mount the Retainer, Gooseneck assembly.

Note : At this time, confirm that the T soft assembly is surely engaged with the T soft arm. (Refer to 3-5 Take-up Reel Table Assembly and Take-up Soft Assembly.)

10) Referring to 1-1, mount the cassette compartment assembly.

Note : Referring to 3-22, adjust the tension regulator position.

Note : Referring to 3-23, adjust the forward back tension.

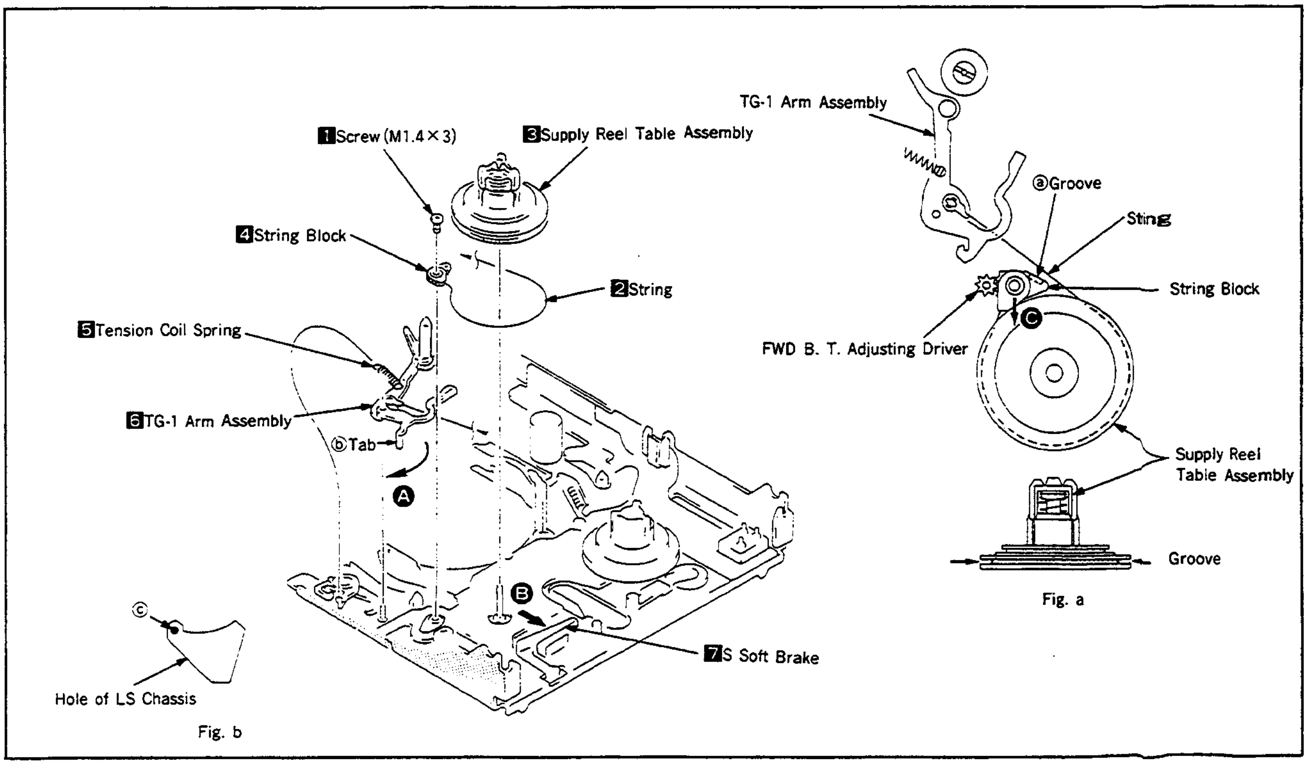

1 Screw (M1.4 × 3)
3 Supply Reel Table Assembly
4 String Block
2 String
5 Tension Coil Spring
6 TG-1 Arm Assembly
ⓑ Tab
Ⓐ
Ⓑ
7 S Soft Brake
ⓒ
Hole of LS Chassis
TG-1 Arm Assembly
ⓐ Groove
Sting
String Block
FWD B. T. Adjusting Driver
Ⓒ
Supply Reel Table Assembly
Groove

Fig. b

Fig. a

Fig. 18

3 . TG-2 ROLLER ASSEMBLY (Fig. 19)

1. Removal

1) Remove the TG-2 roller assembly ❶ .
2) Remove a compression coil spring ❷ .

2.Mounting

1) Insert a compression coil spring ❷ into the boss on chassis.
2) Rotate gently the TG-2 roller assembly ❶ until the screw is engaged.

3. Presetting of TG-2 Roller Height (Fig. a)

1) Rotating the TG-2 upper flange, adjust the height of bottom face of TG-2 lower flange from the top face of dowel on the mechanical chassis to 3. 3 ± 0. 05mm.

Note : After adjustment, perform 4. TAPE PATH ADJUSTMENT.

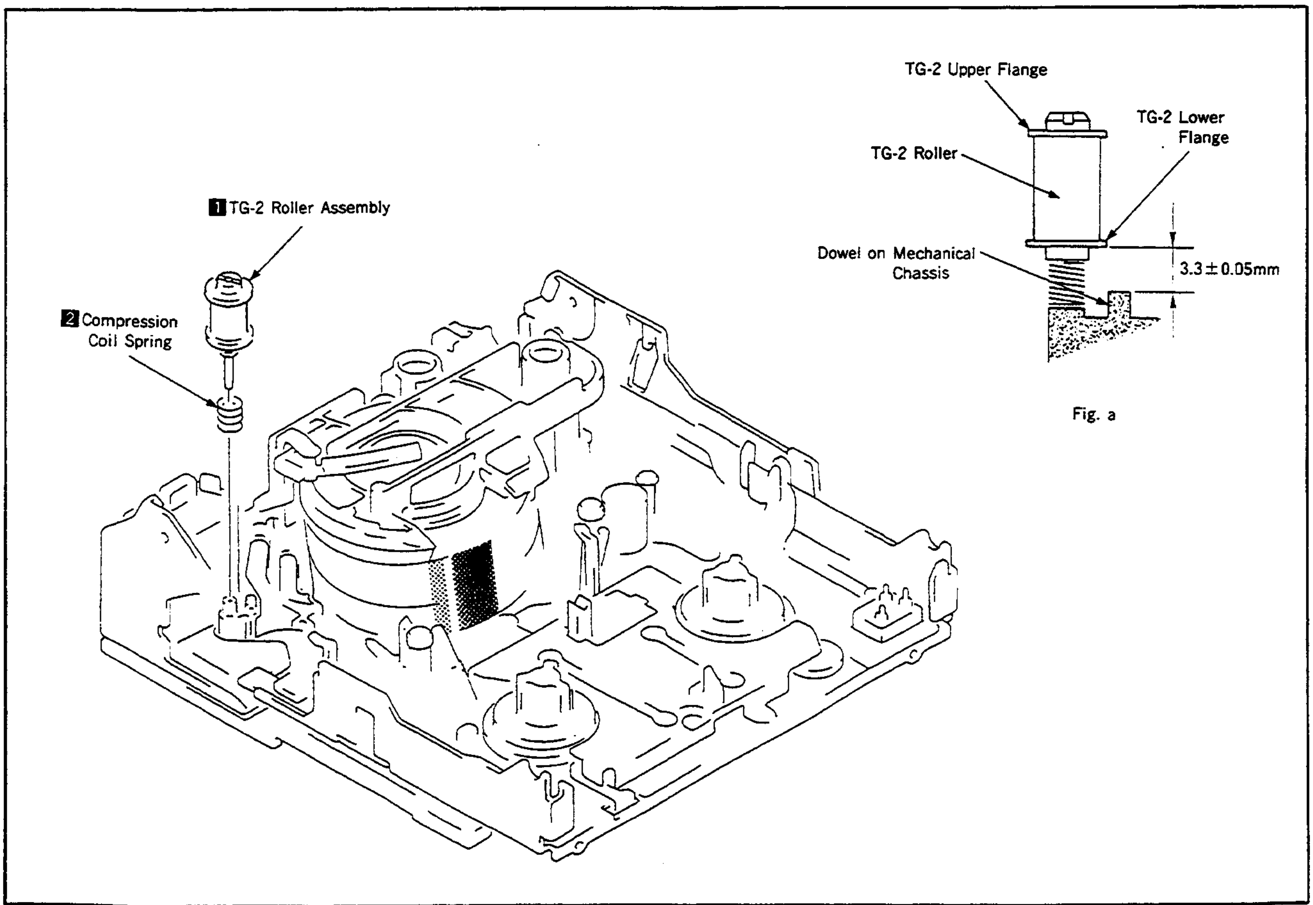

❶TG-2 Roller Assembly
❷Compression Coil Spring
TG-2 Upper Flange
TG-2 Lower Flange
TG-2 Roller
Dowel on Mechanical Chassis
3.3±0.05mm
Fig. a

Fig. 19

3-12. TG-7 ARM ASSEMBLY (Fig. 20)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Raise a portion ⓐ of TG-7 arm Leaf spring ❶ in arrow direction with a flat-blade screwdriver or tweezers to disengage the tab from the chassis, then remove the TG-7 arm Leaf spring as shown in Fig. a.
6) Remove the TG-7 assembly ❷ from the shaft of mechanical-chassis.

2. Mounting

1) Mount the TG-7 arm assembly ❷ to the shaft of mechani chassis.
2) Mount the TG-7 arm Leaf spring ❶ to the mechanicalcha sis.
   * Push in the tab of Leaf spring until it clicks into a detent ofchassis (Fig. a).
3) Referring to 3-7, mount the LS chassis assembly.
4) Referring to 3-2, mount the protector base assembly.
5) Referring to 3-1, mount the Retainer, Gooseneck assembly.
6) Referring to 1-1, mount the cassette compartmnet assembly.

Note : After mounting, perform 4. TAPE PATH ADJUSTMENT.

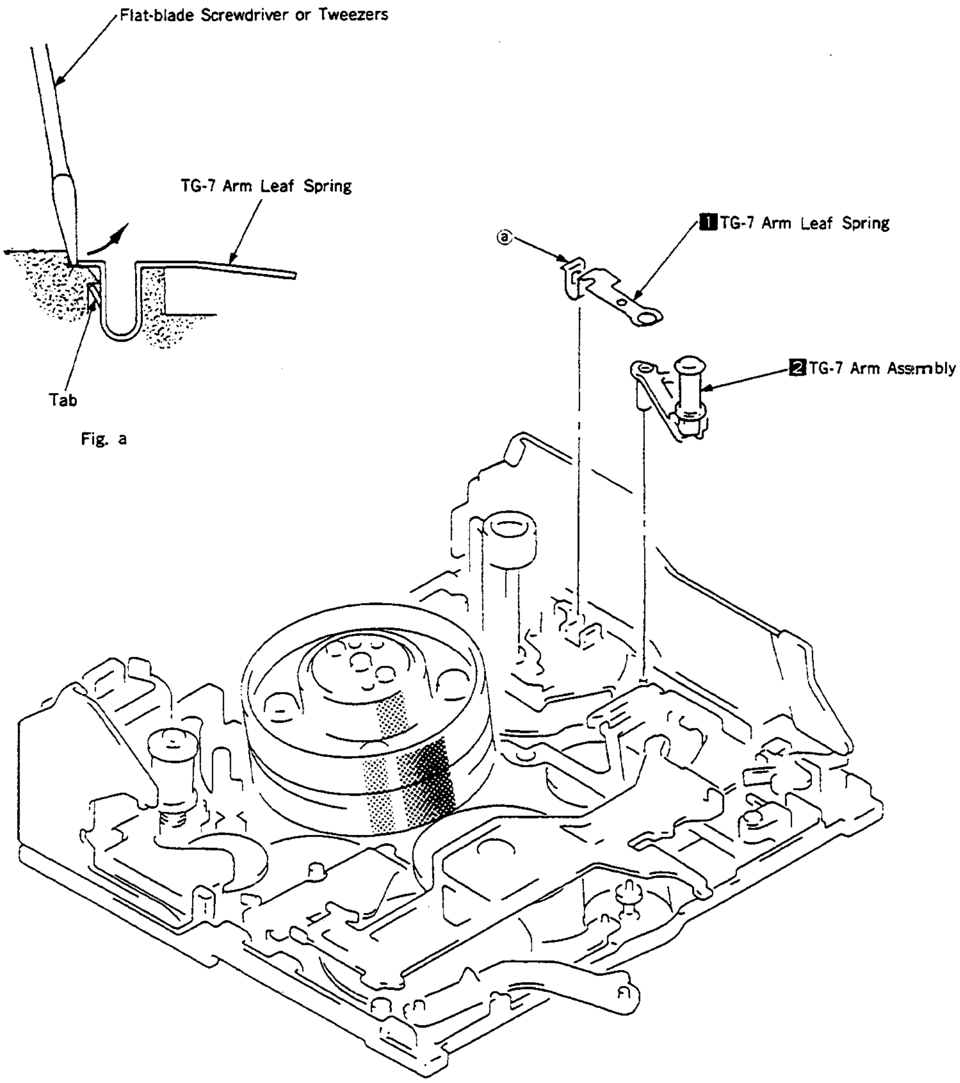


Fig. a

Fig. 20

3 . LM MOTOR ASSEMBLY (Fig. 21)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Select the LOAD mode (at the position where the FF arm assembly is not above the screw ❶).
6) Remove two screws ❶, then the LM motor assembly ❷.

2. Mounting

1) Aligning the dowel ⓐ of LM motor assembly ❷ with the hole ⓑ of mechanical chassis, mount the LM motor assembly with its hole ⓒ inserted into the mechanical chassis shaft ⓓ.
2) Tighten two screws ❶.
3) Referring to 3-7, mount the LS chassis assembly.
4) Referring to 3-2, mount the protector base assembly.
5) Referring to 3-1, mount the Retainer, Gooseneck assembly.
6) Referring to 1-1, mount the cassette compartment assembly.

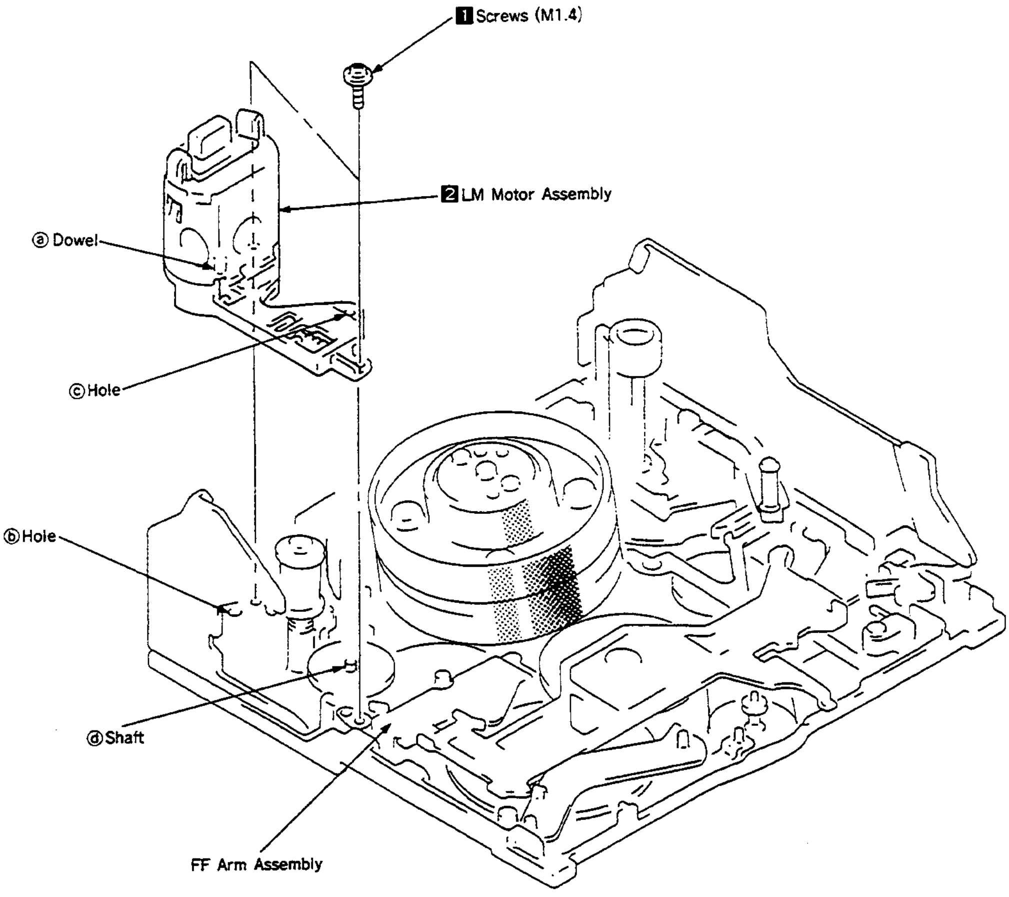


Fig. 21

3-14. LS ARM (Fig. 22)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the proctector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Remove the LS arm 1 from the shaft of mechanical chassis.

Note : Take care not to drop the LS roller 2.

2. Mounting

1) Mount the LS arm 1 meeting with mechanical chassis sh and cam groove.

Note : Move the LS arm 1 in arrow direction to confirm that the LS roller 2 is surely inserted.

2) Referring to 3-7, mount the LS chassis assembly.
3) Referring to 3-2, mount the protector base assembly.
4) Referring to 3-1, mount the Retainer, Gooseneck assembly.
5) Referring to 1-1, mount the cassette compartment assembly.

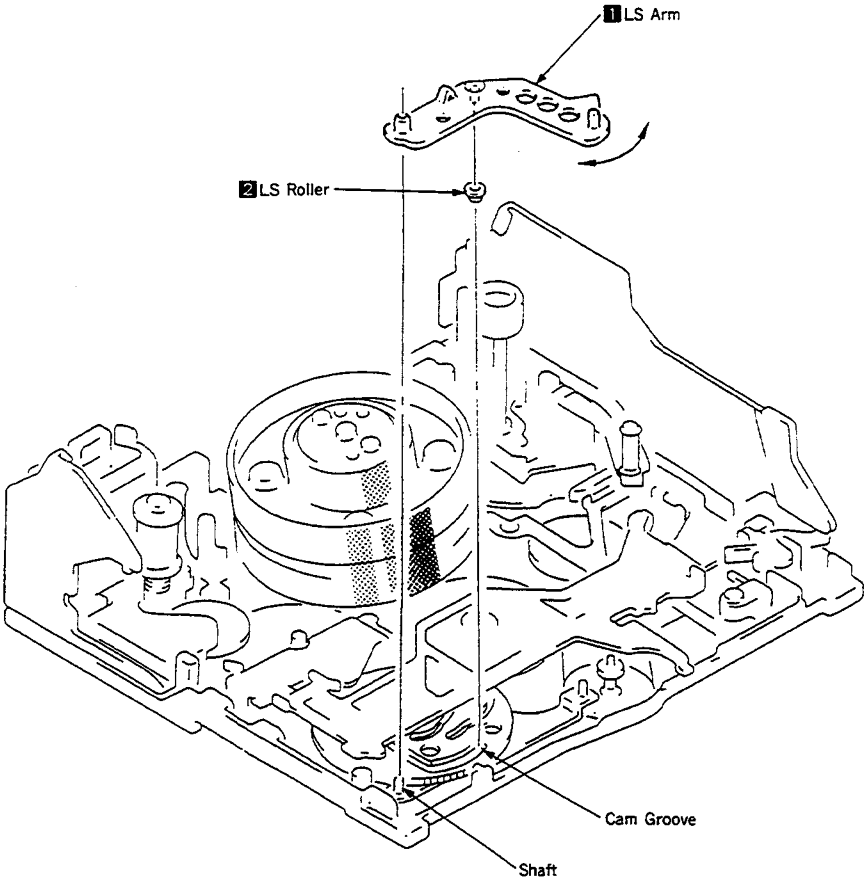


Fig. 22

. M SLIDER ASSEMBLY (Fig. 23)

Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Remove two screws ❶, then the gear holder ❷.
6) Remove two lock washers ❸, then the M slider assembly ❹.

2. Mounting

1) Mount the M slider assembly ❹, aligning long holes ⓐ and ⓑ of M slider assembly with shafts ⓒ and ⓓ of mechanical chassis, and a long hole ⓔ with shaft ⓕ of press arm assembly, and also shaft ⓖ with outer groove ⓗ of cam respectively.
2) Mount two lock washers ❸.
3) Mount the gear holder ❷ with its outserts ⓘ and ⓙ inserted into holes in the mechanical chassis.
4) Tighten two screws ❶.
5) Referring to 3-7, mount the LS chassis assembly.
6) Referring to 3-2, mount the protector base assembly.
7) Referring to 3-1, mount the Retainer, Gooseneck assembly.
8) Referring to 1-1, mount the cassette compartment assembly.

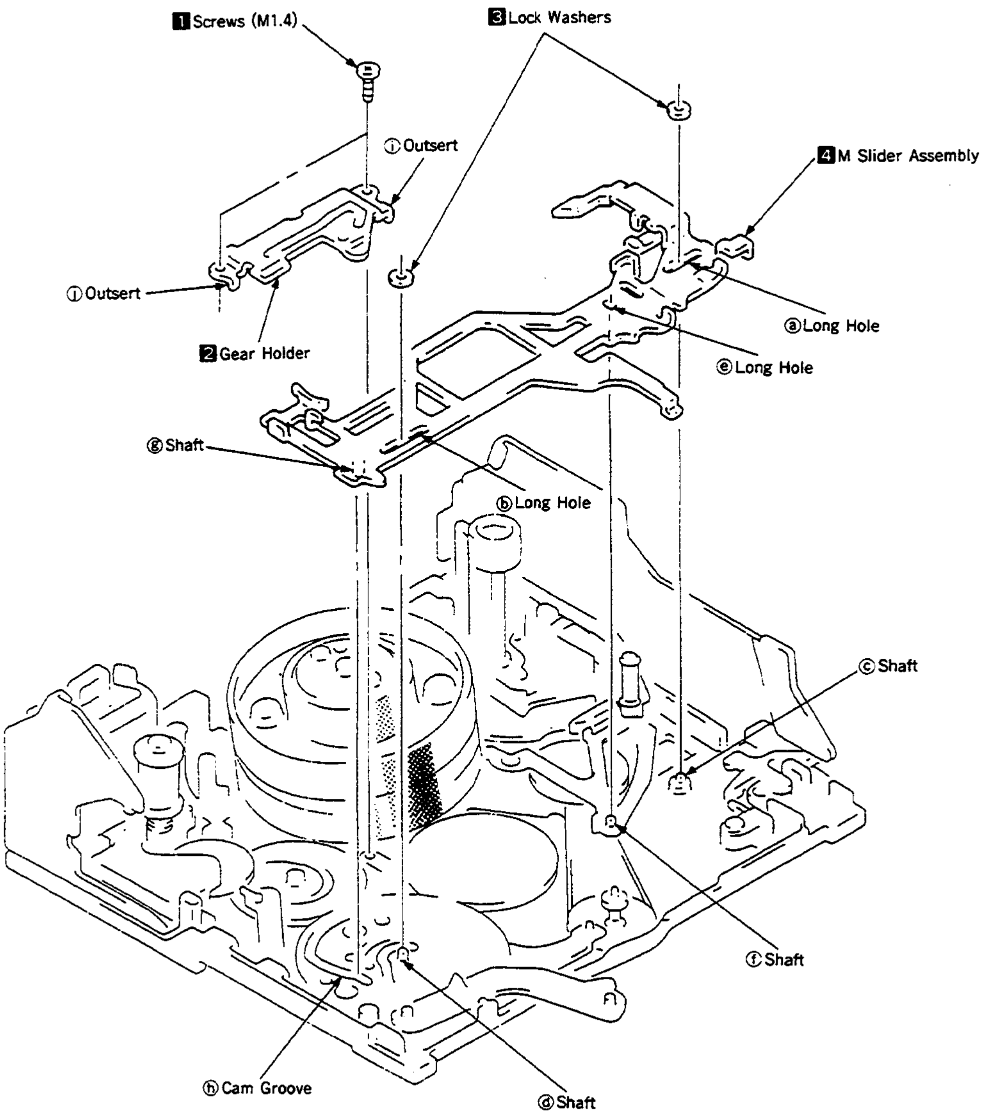

❶ Screws (M1.4)
❸ Lock Washers
ⓘ Outsert
❹ M Slider Assembly
ⓙ Outsert
ⓐ Long Hole
❷ Gear Holder
ⓔ Long Hole
ⓖ Shaft
ⓑ Long Hole
ⓒ Shaft
ⓕ Shaft
ⓗ Cam Groove
ⓓ Shaft

Fig. 23

3-16. PINCH PRESS ARM ASSEMBLY (Fig. 24)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-3, remove the drum assembly.
5) Referring to 3-7, remove the LS chassis assemvly.
6) Referring to 3-15, remove the M slider assembly.
7) Remove a lock washer **1**, then pinch press arm assembly **2**.

2.Mounting

1) Mount the pinch press arm assembly **2**, inserting its sh ⓐ into the cam groove ⓑ of HC drive arm, and hole ⓒ in the shaft ⓓ of mechanical chassis.
2) Mount the lock washer **1**.
3) After mounting, shift the pinch press arm assembly toward the arrow direction.
4) Referring to 3-15, mount the M slider assembly.
5) Referring to 3-7, mount the LS chassis assembly.
6) Referring to 3-3, mount the drum assembly.
7) Referring to 3-2, mount the protector base assembly.
8) Referring to 3-1, mount the Retainer, Gooseneck assembly.
9) Referring to 1-1, mount the cassette compartment assembly.

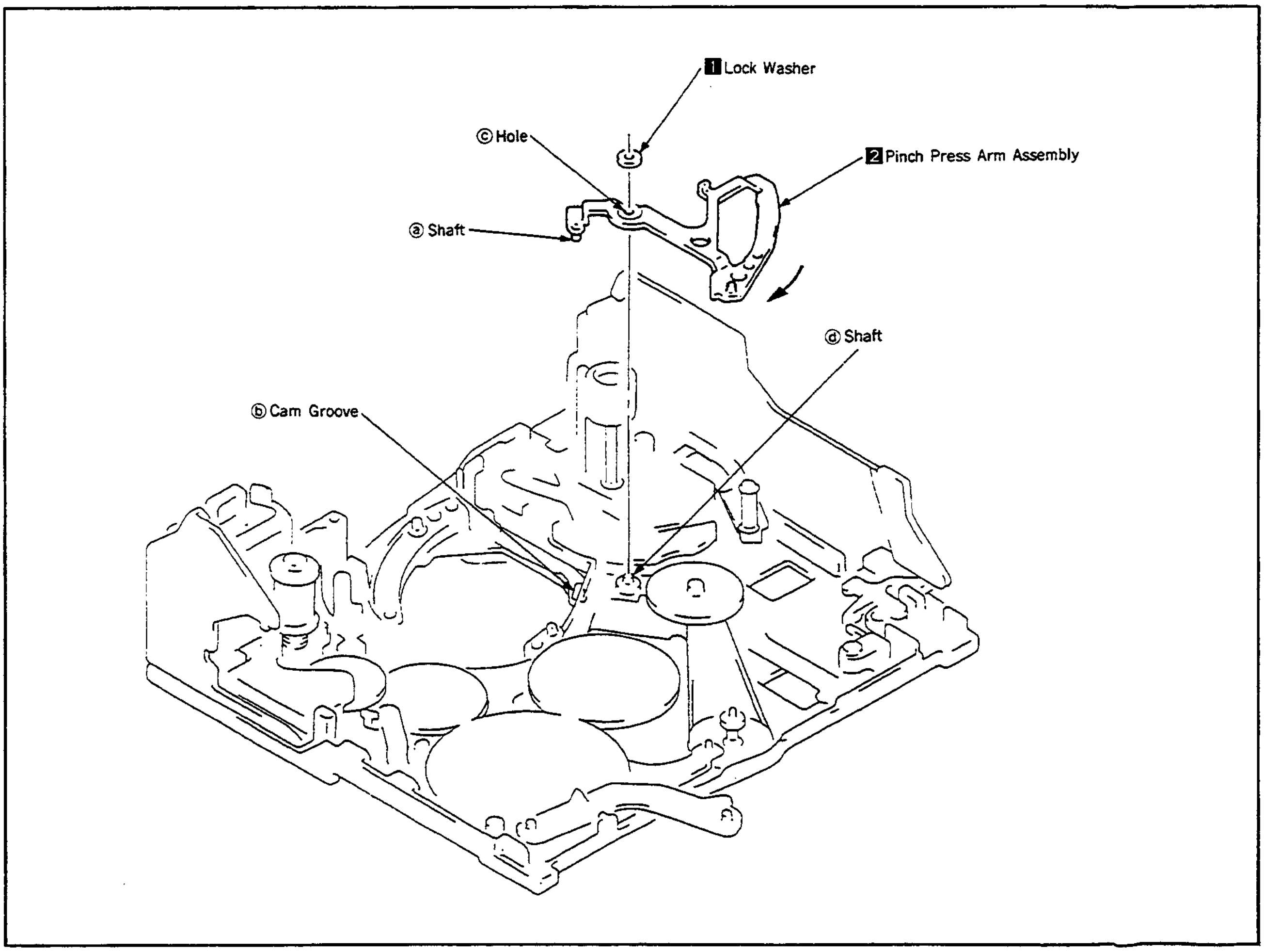


Fig. 24

. CAM (Fig. 25)

Removal

Referring to 1-1, remove the cassette compartment assembly.
Referring to 3-1, remove the Retainer, Gooseneck assembly.
Referring to 3-2, remove the protector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Referring to 3-14, remove the LS arm assembly.
6) Referring to 3-15, remove the M slider assembly.
7) Remove the cam ❶.

2. Mounting

1) Referring to 3-13, remove the LM motor assembly.

Note : Take care not to allow grease of LM motor assembly to stick to the TG-2 roller assembly.

2) Mount the cam ❶, aligning its center hole with shaft of mechanical chassis, and the cam groove with the shaft of GL arm assembly. At this time , make sure that the ▲ mark on L gear B is aligned with that on the cam and also a recess is aligned with the phase aligning hole respectively as shown in Fig. a.

Note : Apply grease to the cam groove if it scarecely remains.

3) Mount the LM motor assembly.
4) Referring to 3-15, mount the M slider assembly.
5) Referring to 3-14, mount the LS arm assembly.
6) Referring to 3-7, mount the LS chassis assembly.
7) Referring to 3-2, mount the protector base assembly.
8) Referring to 3-1, mount the Retainer, Gooseneck assembly.
9) Referring to 1-1, mount the cassette compartment assembly.

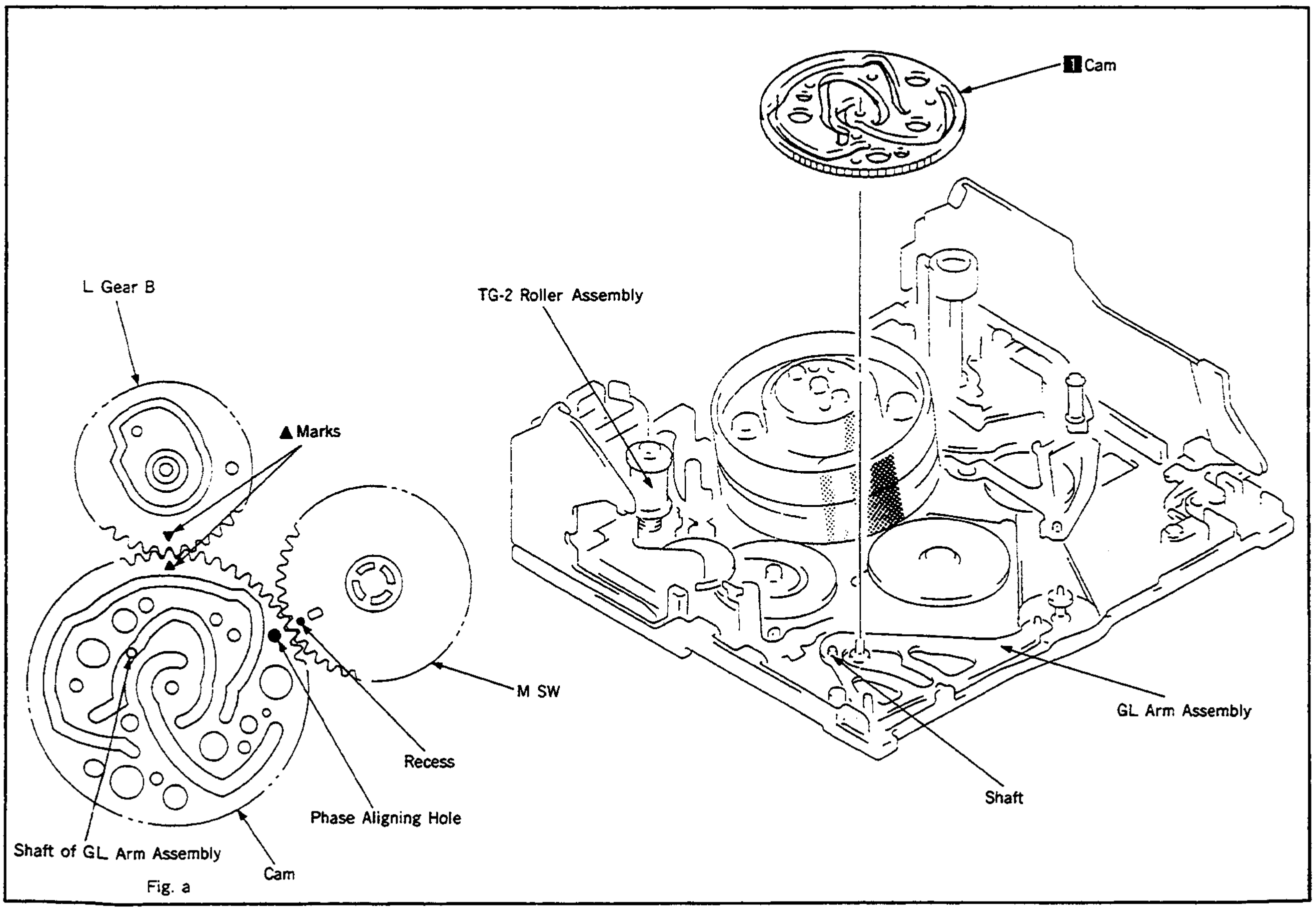


Fig. 25

3-18. GL ARM ASSEMBLY (Fig. 26)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Referring to 3-14, remove the LS arm assembly.
6) Referring to 3-15, remove the M slider assembly.
7) Referring to 3-17, remove the cam.
8) Remove the GL arm assembly ❶.

2. Mounting

1) Mount the GL arm assembly ❶ with its hole ⓐ inserted in the shaft ⓑ of mechanical chassis.
2) Referring to 3-17, mount the cam.
3) Referring to 3-15, mount the M slider assembly.
4) Referring to 3-14, mount the LS arm assembly.
5) Referring to 3-7, mount the LS chassis assembly.
6) Referring to 3-2, mount the protector base assembly.
7) Referring to 3-1, mount the Retainer, Gooseneck assembly.
8) Referring to 1-1, mount the cassette compartment assembly.

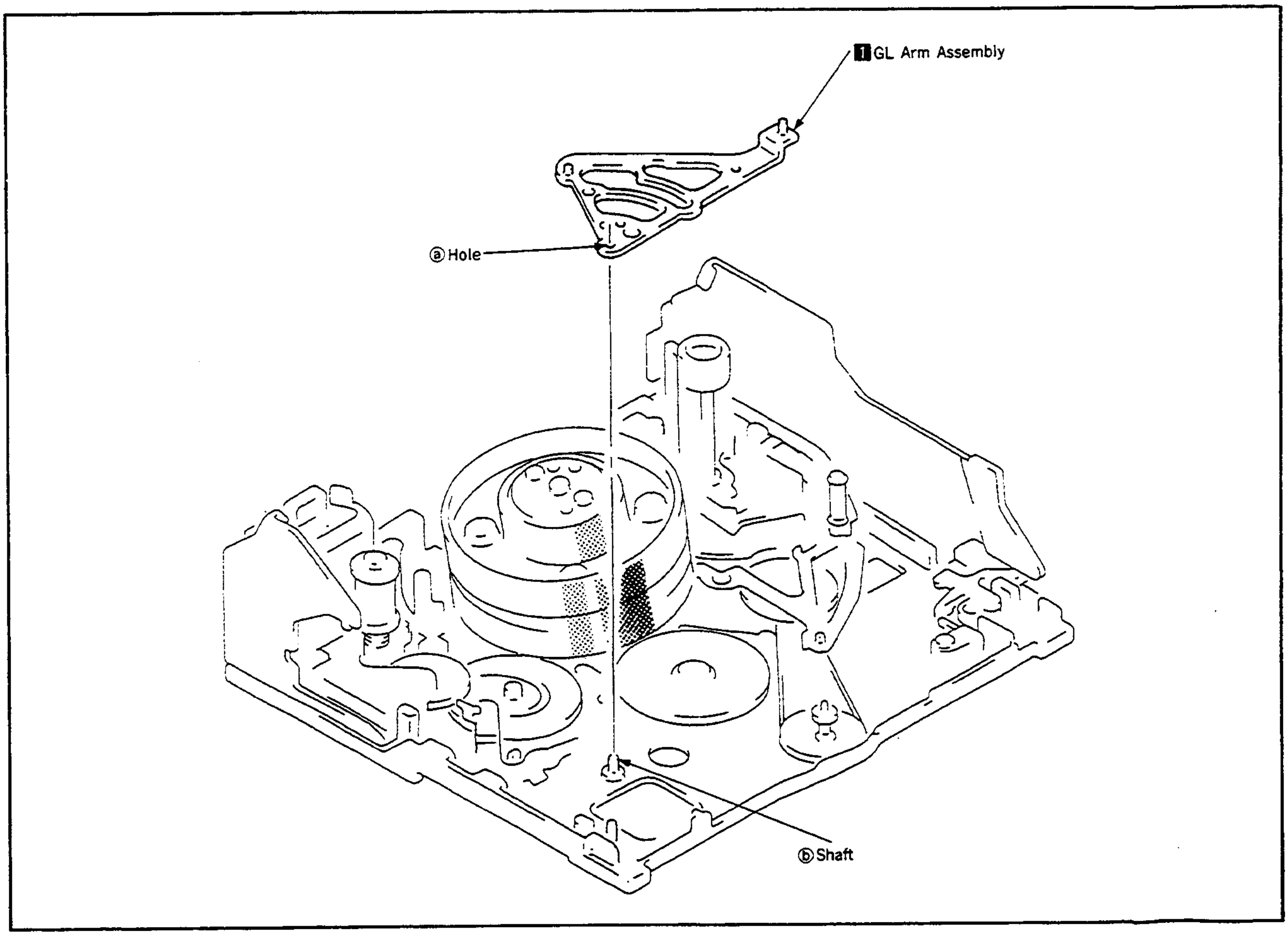


Fig. 26

9. L GEAR A AND L GEAR B (Fig. 27)

Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-7, remove the LS chassis assembly.
5) Referring to 3-14, remove the LS arm assembly.
6) Referring to 3-15, remove the M slider assembly.
7) Referring to 3-17, remove the cam.
8) Referring to 3-13, remove the LM motor assembly.
9) Remove the FF arm assembly 1.
10) Remove the L gear A 2.
11) Remove the L gear B 3.

2. Mounting

1) Insert the L gear B 3 into the shaft of mechanical chassis. (At this time, the phase aligning mark ▲ should be faced toward the cam mounting shaft ⓐ.)
2) Insert the L gear A 2 into the shaft of mechanical chassis.
3) Mount the FF arm assembly 1 with its two shafts inserted into the cam groove of L gear B 3 and the hole of mechanical chassis.
4) Referring to 3-17, mount the cam.
5) Referring to 3-13, mount the LM motor assembly.
6) Referring to 3-15, mount the M sleder assembly.
7) Referring to 3-14, mount the LS arm assembly.
8) Referring to 3-7, mount the LS chassis assembly.
9) Referring to 3-2, mount the protector base assembly.
10) Referring to 3-1, mount the Retainer, Gooseneck assembly.
11) Referring to 1-1, mount the cassette compartment assembly.

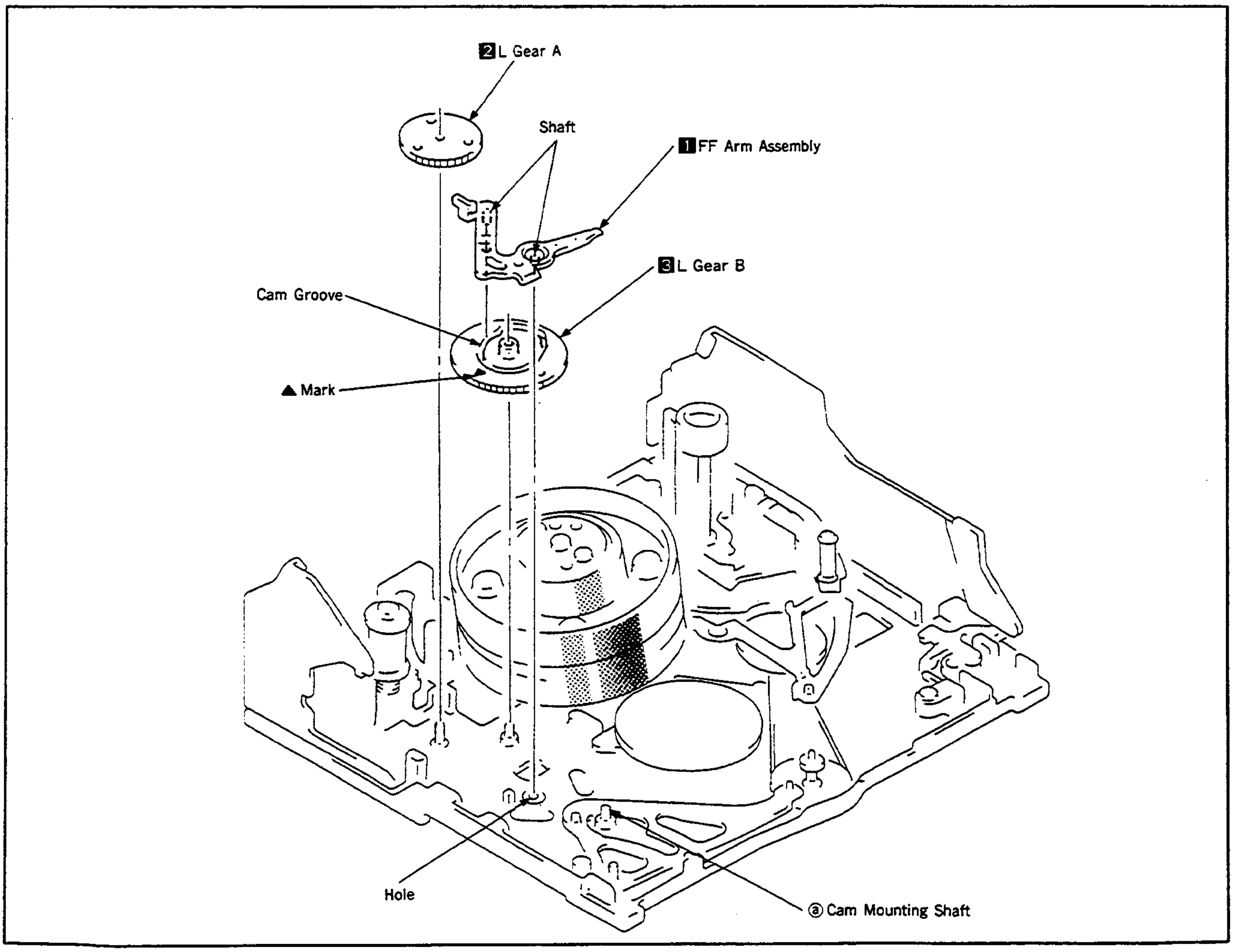


Fig. 27

3-20. RELAY PULLEY AND CHANGE GEAR ASSEMBLY (Fig. 28)

1. Removal

1) Referring to 1-1, remove the cassette compartment assembly.
2) Referring to 3-1, remove the Retainer, Gooseneck assembly.
3) Referring to 3-2, remove the protector base assembly.
4) Referring to 3-3, remove the drum assembly.
5) Referring to 3-7, remove the LS chassis assembly.
6) Referring to 3-14, remove the LS arm assembly.
7) Referring to 3-15, remove the M slider assembly.
8) Referring to 3-17, remove the cam.
9) Referring to 3-18, remove the GL arm assembly.
10) Referring to 3-16, remove the pinch press arm assembly.
11) Remove a lock washer 1, then remove together the Change gear assembly 2, relay belt 3 and relay pulley 4.

2. Mounting

*Give one or two drips of oil to the conversion gear shaft and relay pulley shaft respectively. (Oiling range is under the neck as shown in Fig. a.)

1) Hooking the relay belt 3 to the relay pulley 4 and Change gear assembly 2, mount respective parts.
   *At first, insert the relay pulley into the mechanical chassis-shaft, then the change gear assembly by engaging with the capstan motor gear.

Note : Take care not to damage the Change gear by the capstan motor gear.

2) Mount a lock washer 1.
3) Referring to 3-16, mount the pinch press arm assembly.
4) Referring to 3-18, mount the GL arm asembly.
5) Referring to 3-17, mount the cam.
6) Referring to 3-15, mount the M slider assembly.
7) Referring to 3-14, mount the LS arm assembly.
8) Referring to 3-7, mount the LS chassis assembly.
9) Referring to 3-3, mount the drum assembly.
10) Referring to 3-2, mount the protector base assembly.
11) Referring to 3-1, mount the Retainer, Gooseneck assembly.
12) Referring to 1-1, mount the cassette compartment assembly.

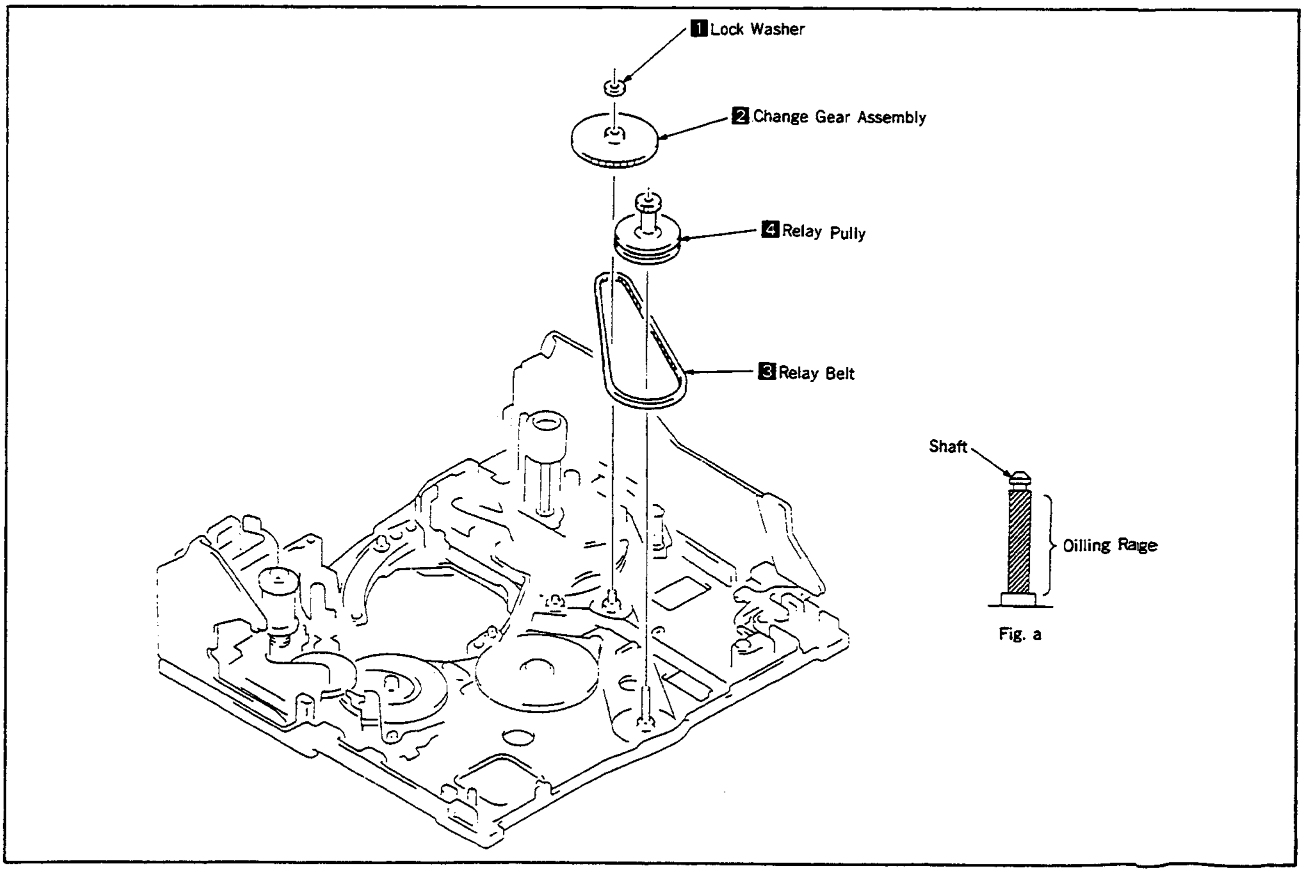


Fig. 28

3-21. ROTARY UPPER DRUM REPLACEMENT

1. Removoal

- If possible, make a recording before removal.

1) Remove the two screws 1 (Fig. 29).
2) Mount the jig 2 (Ref. No. J-10) with the two supplied screws 3, then screw the attached hexagon socket screws 4 to the jig 2. The rotary upper drum 5 will move upward and come off (Fig. 30).

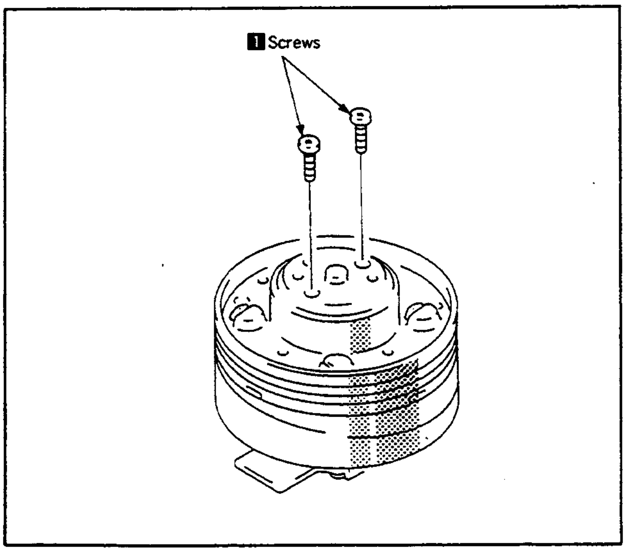


Fig. 29

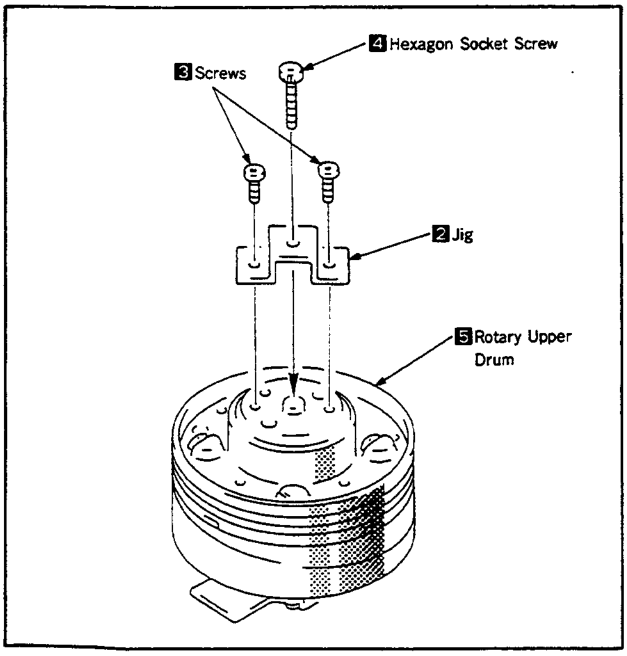


Fig. 30

2. Installation

1) Wipe clean the flange surface and the rotary upper drum 5 surface that makes contact with it, and confirm that they are free from dirt and scratches.
2) Insert the jig 6 (Ref. No. J-10) into the drum positioining hole, then set then set the rotary upper drum 5 by passing the jig through its positioning hole 7. (Fig.31)
3) Remove the jig 6 and push down the rotary upper drum 5 gently by hand. If it does not go all the way down, secure it temporarily by tightening the two screws 1 alternately (Fig.29).
4) Insert the jig 6 into the positioning hole 7 again and confirm that it goes in smoothly. If it does not, loosen the two screws 1, repeat step 2) of the Removal paragraph and restart the setting procedure.
5) Tighten the screws 1.

Note : After installing, be sure to perform tape path adjustment as described in section 4.

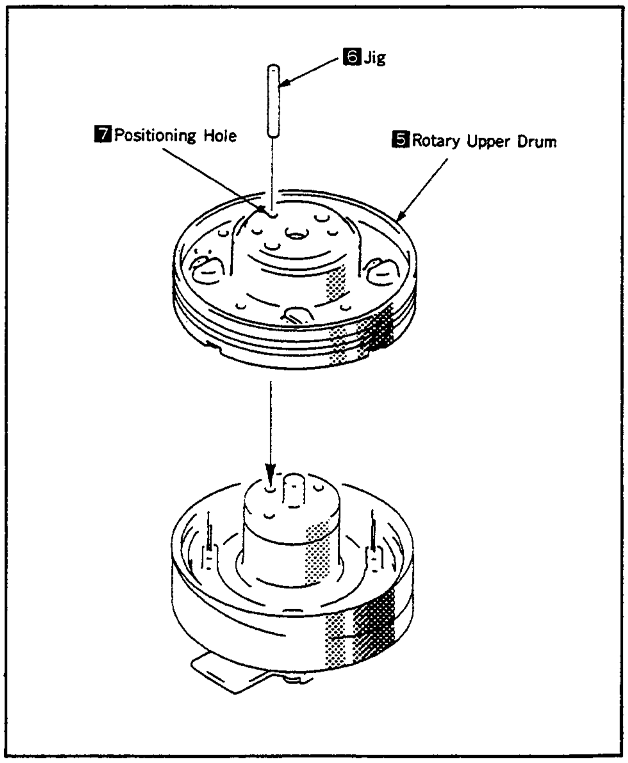


Fig. 31

3-22. ADJUSTMENT OF TENSION REGULATOR POSITION (Fig. 32)

1. Adjustment

1) Set a cassett tape and run the tape in the PB mode.
2) With the tape running, check that the distance from No.1 guide to No. 2 guide upper flange is 4.2 mm.
3) If they are not at the specified positions, perform adjustment in step 4) and subsequent steps.
4) Loosen the screw ❶.
5) If No.1 guide is located inside the specified position, shift the string block toward the arrow Ⓐ using the FWD B.T. adjusting driver (Ref No. J-15). Or, if it is located outside, shift toward the arrow Ⓑ.
6) Tighten the screw ❶.

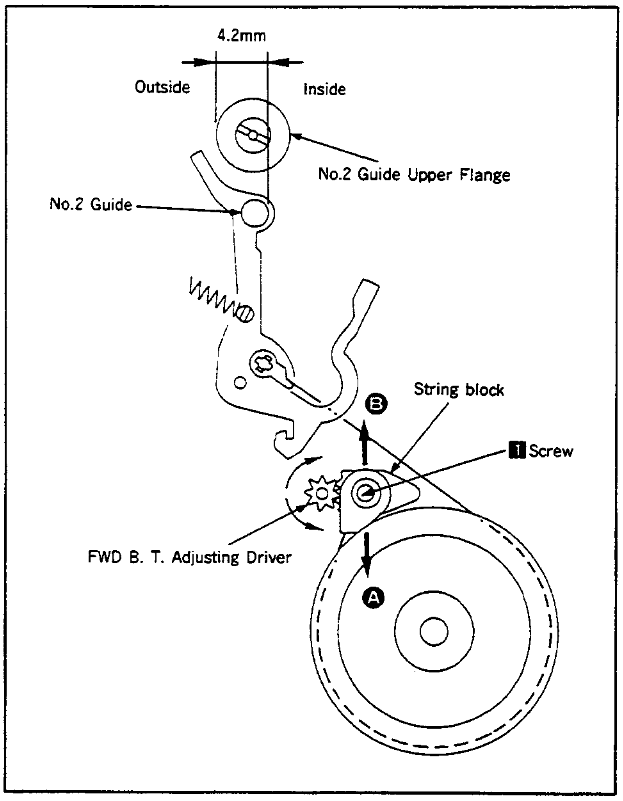

4.2mm
Outside
Inside
No.2 Guide Upper Flange
No.2 Guide
String block
Ⓑ
❶ Screw
FWD B. T. Adjusting Driver
Ⓐ

Fig. 32

3-23. FWD BACK TENSION ADJUSTMENT (Fig.33)

1) Select the TEST mode 1 using the adjusting remote controller (Ref No. J-17).
2) Set the torque cassette (Ref No.J-10).
3) Select the FWD mode, and check that the torque of S reel table is 8.5 ~ 11.5 g · cm.
If it is out of standard, adjust the TG-1 spring hook position using the FWD B.T. adjusting driver (Ref No. J-15).

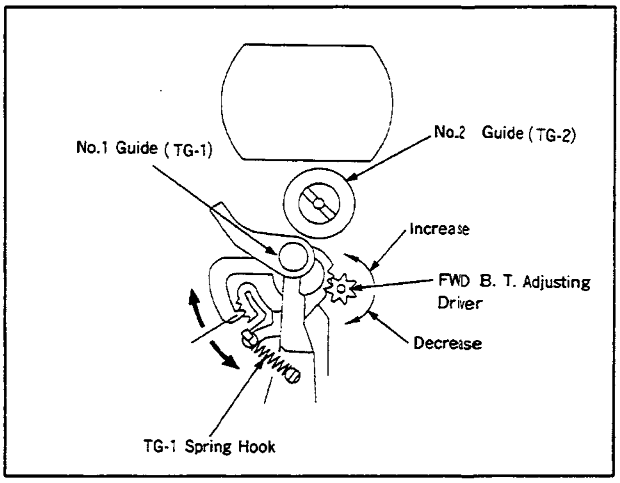

No.1 Guide (TG-1)
No.2 Guide (TG-2)
Increase
FWD B. T. Adjusting Driver
Decrease
TG-1 Spring Hook

Fig. 33

3-24. REEL TORQUE CHECK

1) Set the torque cassette.
2) Select the FWD mode, and check that the torque fluctuation center of T reel table is 7 ~ 17 g · cm
3) Select the REV mode, and check that the torque fluctuation center of S reel table is 25 ~ 39 g · cm.
4) Select the REV mode, and check that the torque of T reel table is 7 ~ 17 g · cm.
5) If the above data is not satisfied, the tension regulator band, T hard tab or T soft assembly will be faulty. Check them first, and if no abnormality is found, replace respective reel tables.

4. TAPE PATH ADJUSTMENT

The 8mm video system uses ATF (Automatic Track Finding) which instantaneously controls a tape running speed based on 4 types of pilot signals and performs high-precision tracking.
This does away a tracking control knob and allows accurate track tracing.
On the other hand, however, the ATF system has a problem in adjusting the tape path system. That is, if head tracing is out of order a little, the ATF automatically corrects it, which means that perfect adjustment cannot be done.
Therefore, in the A mechanism, the ATF system is forcibly operated to shift a tracking amount constantly (approx. 1/4) by setting the PATH mode with the adjusting remote controller (Ref No.J-16). So, fine tracking adjustment can be easily done. Also, the PATH mode setting varies with the model, and therefore, refer to the Service Manual.

Example) For CCD-FX410 series
Set the adjusting remote controller to the HOLD ON side.

1) Set PAGE : 1, ADDRESS : 00, DATA : 01 to cancel the PROTECT mode.
2) Set PAGE : D, ADDRESS : 01, DATA : 03 to select the PATH mode.

Note : Setting of PATH mode = TRACK SHIFT mode
If the adjusting remote controller (Ref No.J-16) is set to HOLD OFF once, then set to HOLD ON again after mode setting, the display of ADDRESS and DATA changes.

3) After adjustment is over, set DATA : 00, and press the PAUSE buttom on the adjusting remote controller (Ref No. J-16).

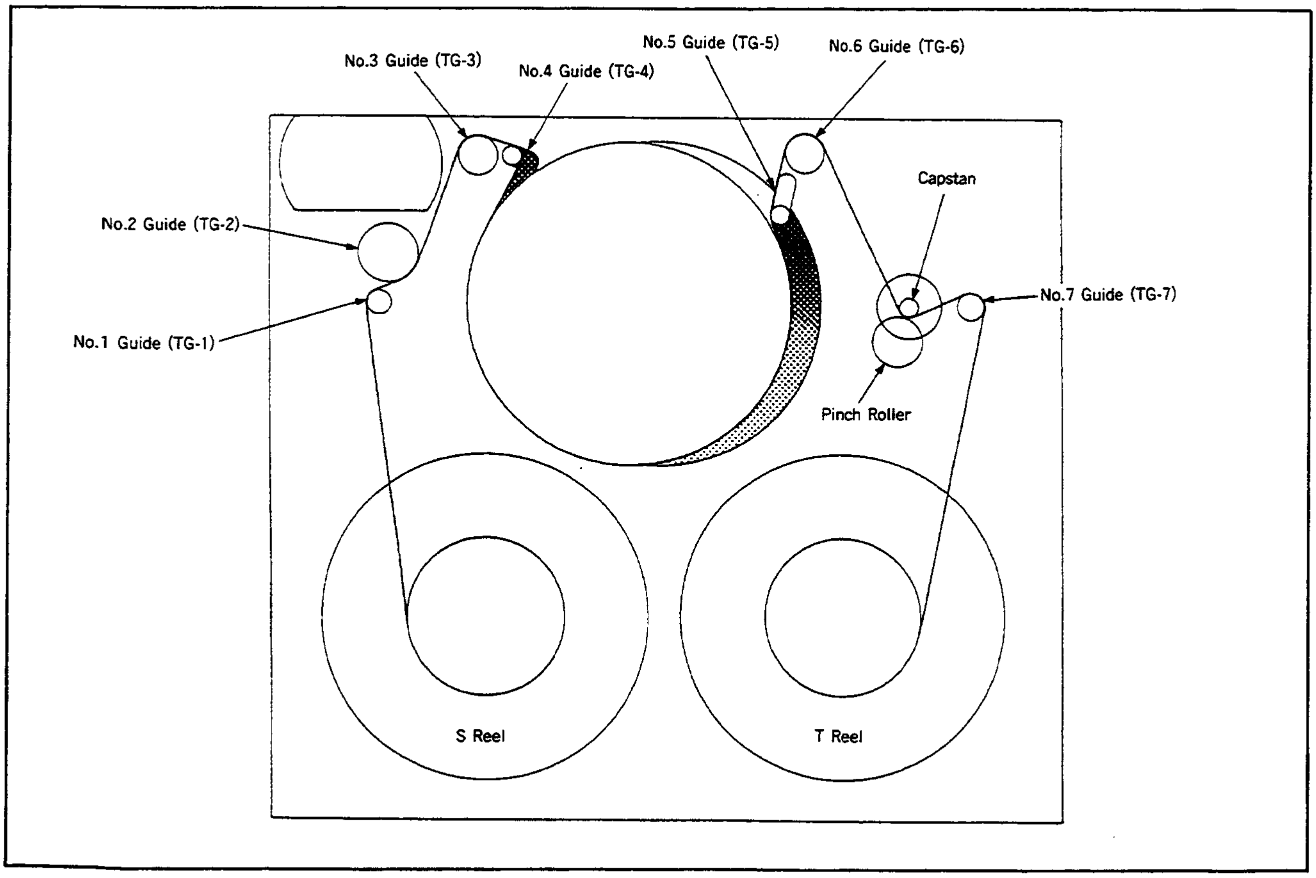


Fig. 34-A

[Note on Adjustment of No.7 Guide (TG-7)]
The height adjustment screw for No.7 guide (TG-7) is located at some distance from the guide (refer to Fig.41).
Therefore, when performing section 4-4. No.7 Guide (TG-7) Adjustment it is convenient to use the alignment tape for tracking (Ref. No. J-6), modified as follows, and perform adjustment in playback mode.

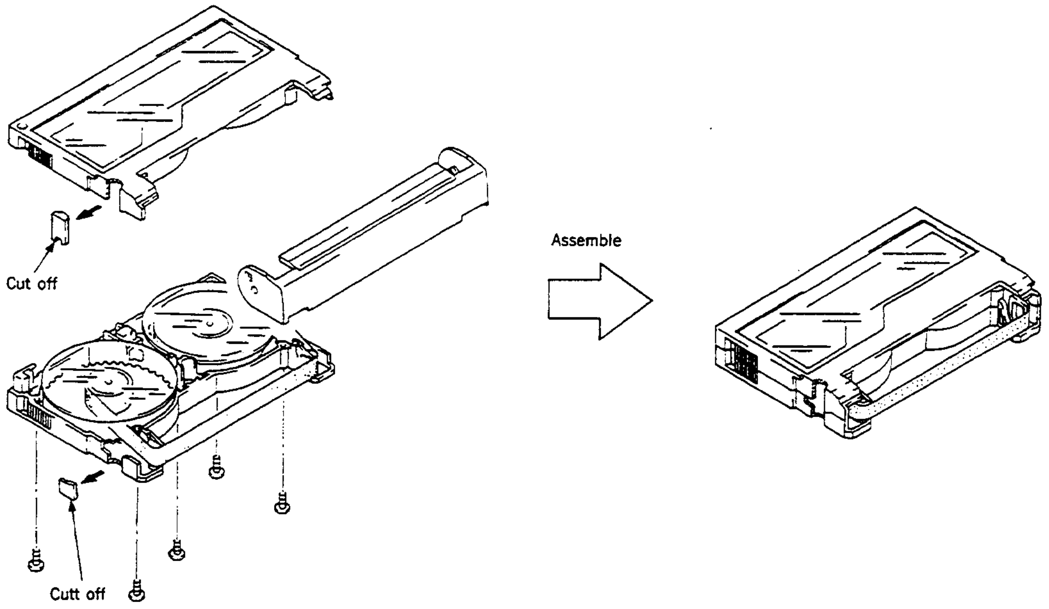


Fig. 34-B

4-1. PREPARATION FOR ADJUSTMENT

1) Clean the tape running surface (tape guides, drum, capstan shaft, pinch roller) (Fig. 34-A).
2) Set the PATH mode using the adjusting remote controller.
3) connect an oscilloscope to the check pin connector of the set.
   Example) For CCD-FX410 series
      CH1 : CN001 pin ③ (PB RF OUT) on CS-31 board
      CH2 : CN001 pin ④ (RF SWP) on CS-31 board
4) Play back a tracking alignment tape (NTSC : WR5-1N, or PAL : WR5-1C).
5) Check that a RF waveform is flat at the inlet and outlet of the oscilloscope (Fig. 35 ⓐ).
   If not flat, make adjustment with the procedures below.
   When the RF waveform is not flat at the inlet/outlet ; See Fig. 35 ⓑ and ⓒ.

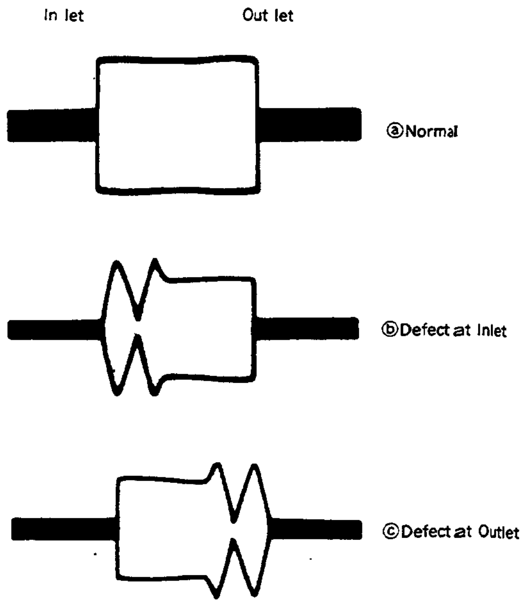


Fig. 35

4-2. TRACKING ADJUSTMENT (Fig. 36, 37)

1) Play back the tracking alignment tape.
2) Loosen the No.3 guide (TG-3) lock screw 1 and turn the No.3 guide to flatten the waveform at the inlet.
3) Tighten the No.3 guide (TG-3) lock screw 1 to lock the No.3 guide.
4) Loosen the No.6 guide (TG-6) lock screw 2 and turn the No.6 guide to flatten the waveform at the outlet.
5) Tighten the No.6 guide (TG-6) lock screw 2 to lock the No.6 guide. When this is done, make sure that the waveform does not change at the outlet.

Note : Be careful not to loosen the lock screw too much because the guide is easily moved.
: Take care not to allow interference between No.6 guide and drum when tightening the No.6 guide lock screw.

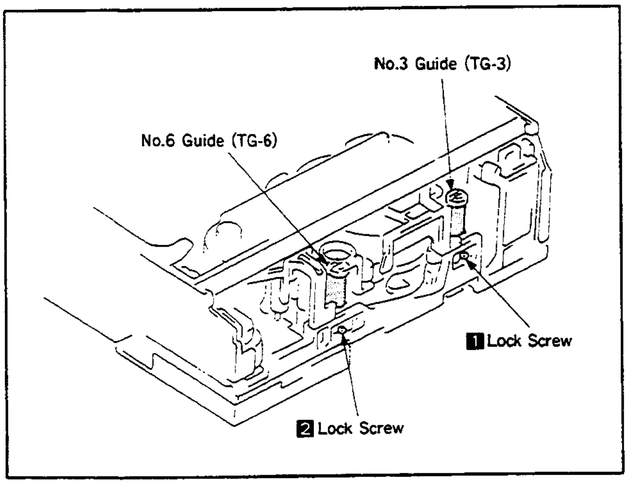


Fig. 36

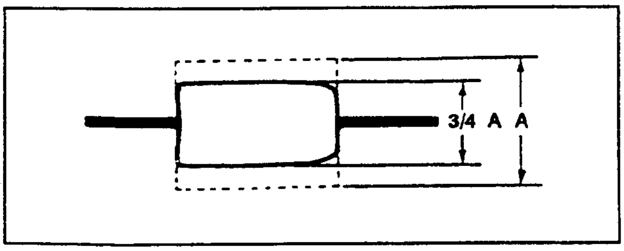


Fig. 37

4-3. No.2 GUIDE (TG-2) ADJUSTMENT

When the No.2 guide has been turned or replaced, perform height presetting before this adjustment.

4-3-1. No. 2 GUIDE (TG-2) HEIGHT PRESETTING (Fig. 38)

1) Rotating the TG-2 upper flange, adjust the height of bottom face of TG-2 lower flange from the top face of dowel on the mechanical chassis to 3.3 ± 0.05 mm.

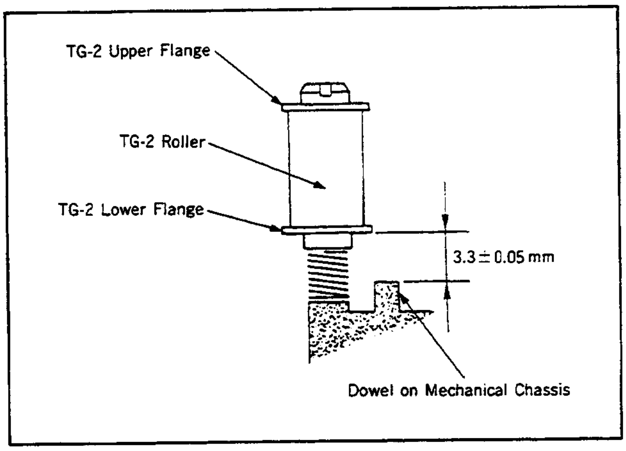


Fig. 38

[Reference]
This A mechanism is equipped with four adjustable guides (TG-2, 3, 6 and 7) . To raise or lower the respective guide rotate the corresponding adjustment screw as shown below.

Guide	Guide adjustment	Rotating direction of adjustment screw
TG-2, 3, 6	Raise	Counterclockwise
	Lower	Clockwise
TG-7	Raise	Clockwise
	Lower	Counterclockwise

4-3-2. No. 2 GUIDE (TG-2) ADJUSTMENT (Fig. 39, 40)

1) Play back a thin tape like the P6-120MP, etc. and set the REV mode.
2) Confirm that the tape is not bent at the lower flange ❷ of the No.2 guide (TG-2) ❶ (Fig. 39). If it is, turn the upper flange ❸ of the No.2 guide (TG-2) clockwise with a screwdriver, lowering it until the tape is straightened.
3) Play back the alignment tape for tracking adjustment.
4) Perform tracking adjustment and trcking fine adjustment as described in sections 4-2.
5) In the track shift mode, CUE/REV the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds.
6) If the waveform is not normal (Fig. 40), turn the upper flange ❸ of the No. 2 guide (TG-2) ❶ 90° counterclockwise and repeat step 5.
   Repeat steps 5) and 6) until a normal waveform is obtained.
   Then, confirm that the tracking waveform has not changed.
   If it has, perform fine adjustment of entrance side tracking and repeat step 5).

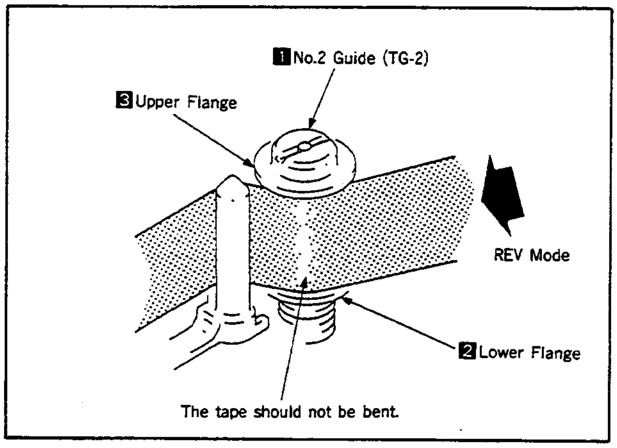


Fig. 39

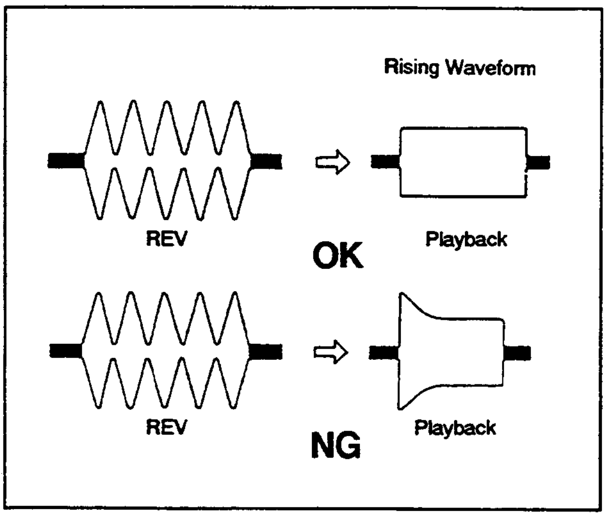


Fig. 40

4-4. No.7 GUIDE (TG-7) ADJUSTMENT (Fig. 41)

Note : This adjustment requires the No. 7 guide adjusting cassetetape (Fig. 34-B).

1) Play back the No.7 guide adjusting cassetetape and set the REV mode.
2) Confirm that the tape is not bent between the No.6 guide (TG-6) ❶ and the capstan ❷. If it is, turn the hight adjusting screw ❹ of the No.7 guide (TG-7) ❸ until the tape is straightened.
3) Set the playback mode again and confirm that the tape is not bent between the capstan ❷ and the hight adjusting screw ❹ of the No.7 guide (specification : 0.5mm or less). If the tape is bent beyond the specification, turn the No.7 guide (TG-7) ❸ until bending is within the specification (0.5mm).
   If in the REV mode tape bending between the No. 6 guide (TG-6) ❶ and the capstan ❷ is 0.3mm or less, adjustment can be considered completed.

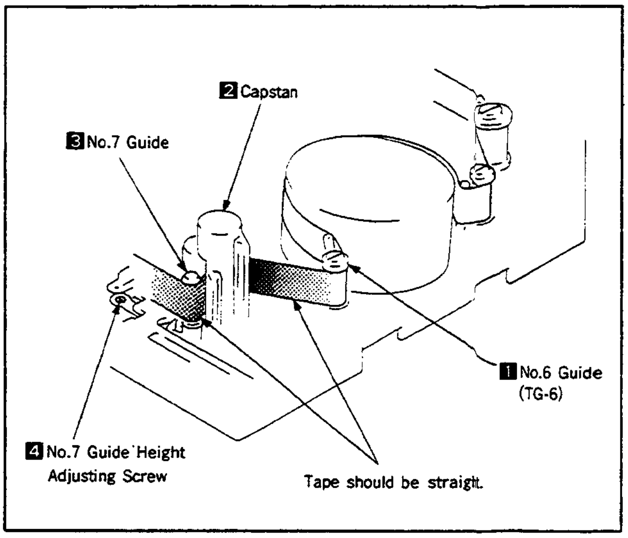


Fig. 41

4-5. CUE AND REV WAVEFORM CHECK (Fig. 42)

1) Play back the alignment tape for tracking adjustment and set the REV mode. Confirm that waveform peaks maintain a constant pitch of 5 seconds or more (Fig. 42). In case pitch is not constant, perform section 4-2.Tracking Fine Adjustment and section 4-4. No.7 Guide Adjustment.
2) Set the CUE mode. Confirm that waveform peaks still maintain a constant pitch of 5 seconds or more (Fig.42).
   Otherwise, perform section 4-2 Tracking Fine Adjustment.

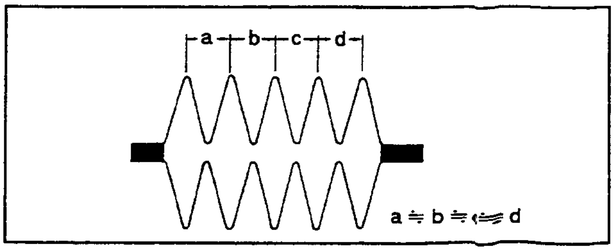


Fig. 42

4-6. CHECK AFTER ADJUSTMENT

4-6-1. TRACKING CHECK

1) Confirm that the amplitude of RF waveform is reduced to approx. 3/4 when the track shift mode is set (Fig. 43).
2) Then, confirm that the minimum amplitude value (EMIN) is 65 % of the maximum value (EMAX) or larger (Fig. 44).
3) Confirm that no large fluctuations occur on the waveform (Fig. 45).

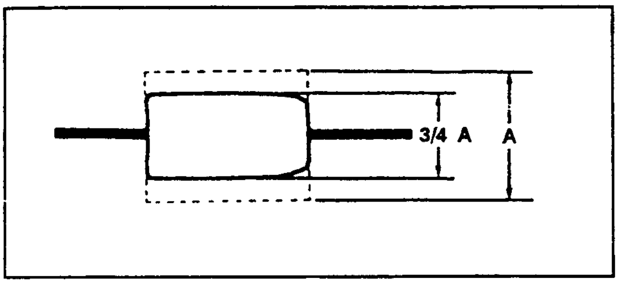


Fig. 43

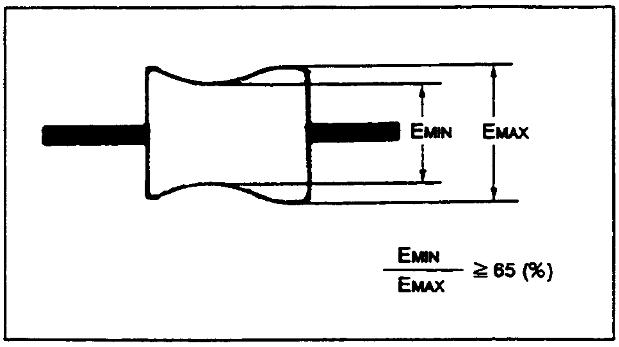

EMIN
EMAX
$\frac{E_{MIN}}{E_{MAX}} \geqq 65$ (%)

Fig. 44

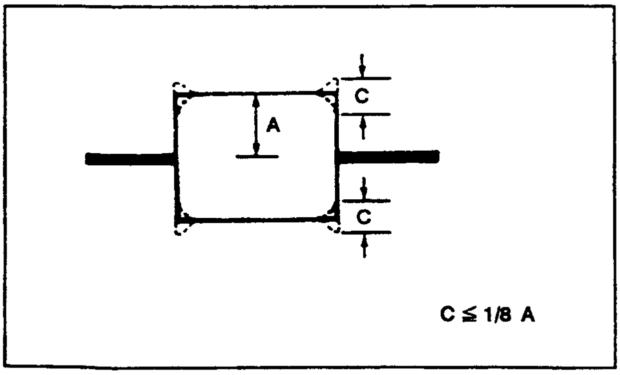


Fig. 45

4-6-2. RISING CHECK (Fig. 46)

1) Play back the alignment tape for tracking adjustment.
2) Cancel the track shift mode.
3) Eject the tape, then load it again.
4) Set the playback mode and confirm that the RF wave form rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller.
5) CUE/REV and FF/REW the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds, Also confirm that the tape is not bent around the pinch roller.
6) Repeat steps 3) to 5) once more.

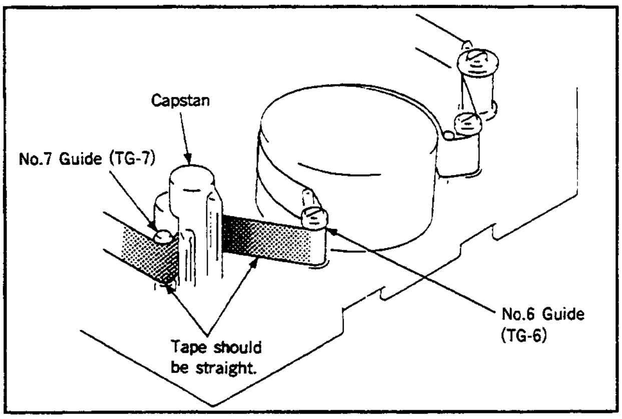

Capstan
No.7 Guide (TG-7)
No.6 Guide (TG-6)
Tape should be straight.

Fig. 46

4-6-3. TAPE PATH CHECK (Fig. 47)

1) Play back a thin tape like the P6-120MP (NTSC) or P5-90MP (PAL), etc. and confirm that no tape rising occurs, and that curling is less than 0.3mm, at the lower flange of the No. 2 guide , the upper flange of the No.3 guide, the upper flange of the No. 6 guide and the No.7 guide upper and lower flanges.
2) Confirm that no tape rising occurs and that curling is less than 0.3mm at the flange of all guide when pressing the FF button in the playback mode to set the CUE mode, or the REW button to set the REV mode.

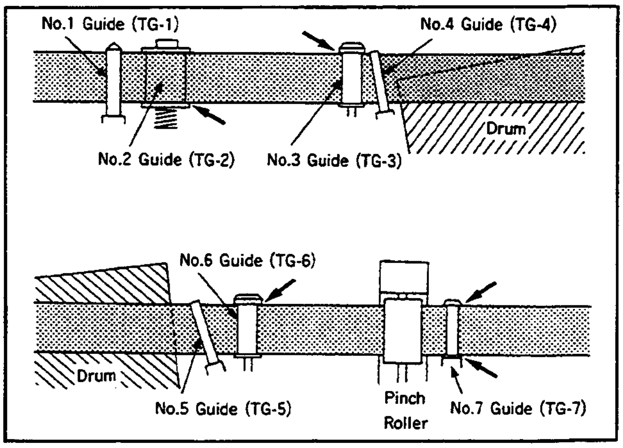

No.1 Guide (TG-1)
No.4 Guide (TG-4)
Drum
No.2 Guide (TG-2)
No.3 Guide (TG-3)
No.6 Guide (TG-6)
Drum
No.5 Guide (TG-5)
Pinch Roller
No.7 Guide (TG-7)

Fig. 47

8mm Video MECHANICAL ADJUSTMENT MANUAL IV

A MECHANISM

SUPPLIMENT-2

Video 8

〈Connection of Mode Selector IV Conversion Connector〉

In use of Mode selector IV conversion connector(J-6082-167-A), there are two different connecting methods depending on the model connected:

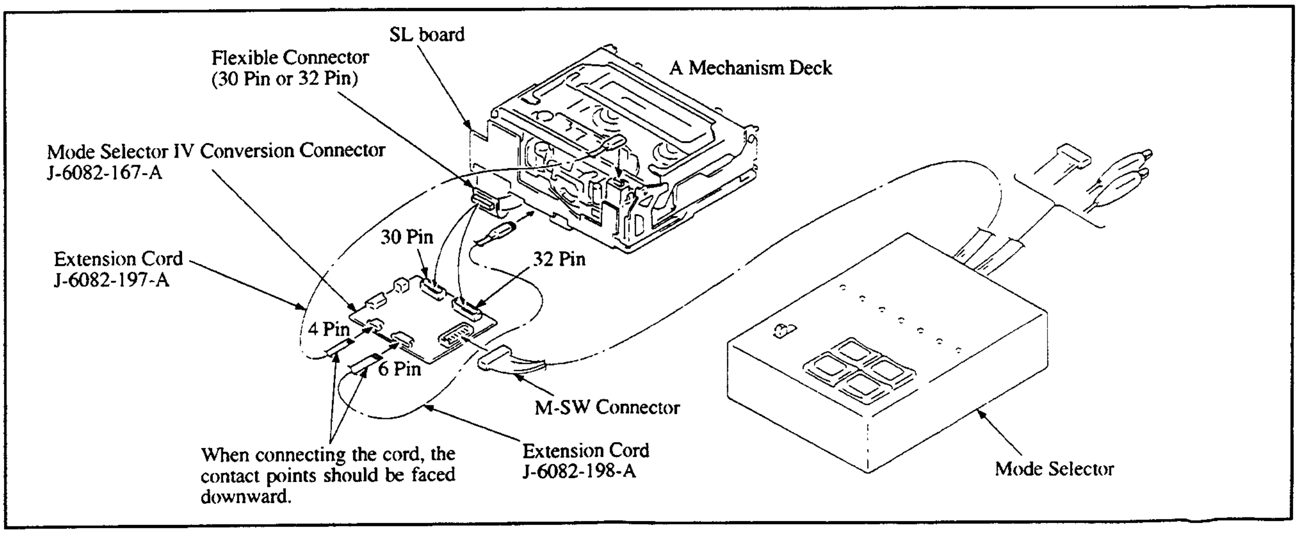
1. CCD-FX series

With the SL board mounted on mechanical deck, connect 30-pin(or 32-pin) connector to 30-pin(or 32-pin) Mode selector IV conversion connector.

(CCD-FX300 series, FX400 series. FX500 series
→ 30-pin connector (FP425 or FP600)
CCD-FX700 series → 32-pin connector (FP477))

2. Models other than above

Connect the extension cord(J-6082-197-A) to loading motor 4-pin connector and extension cord (J-6082-198-A) to mode switch 6-pin connector in mechanical deck, then connect the other end of cord to 4-pin and 6-pin connectors of Mode selector IV conversion connector respectively, as shown below.


SL board
Flexible Connector
(30 Pin or 32 Pin)
A Mechanism Deck
Mode Selector IV Conversion Connector
J-6082-167-A
30 Pin
32 Pin
Extension Cord
J-6082-197-A
4 Pin
6 Pin
M-SW Connector
When connecting the cord, the contact points should be faced downward.
Extension Cord
J-6082-198-A
Mode Selector

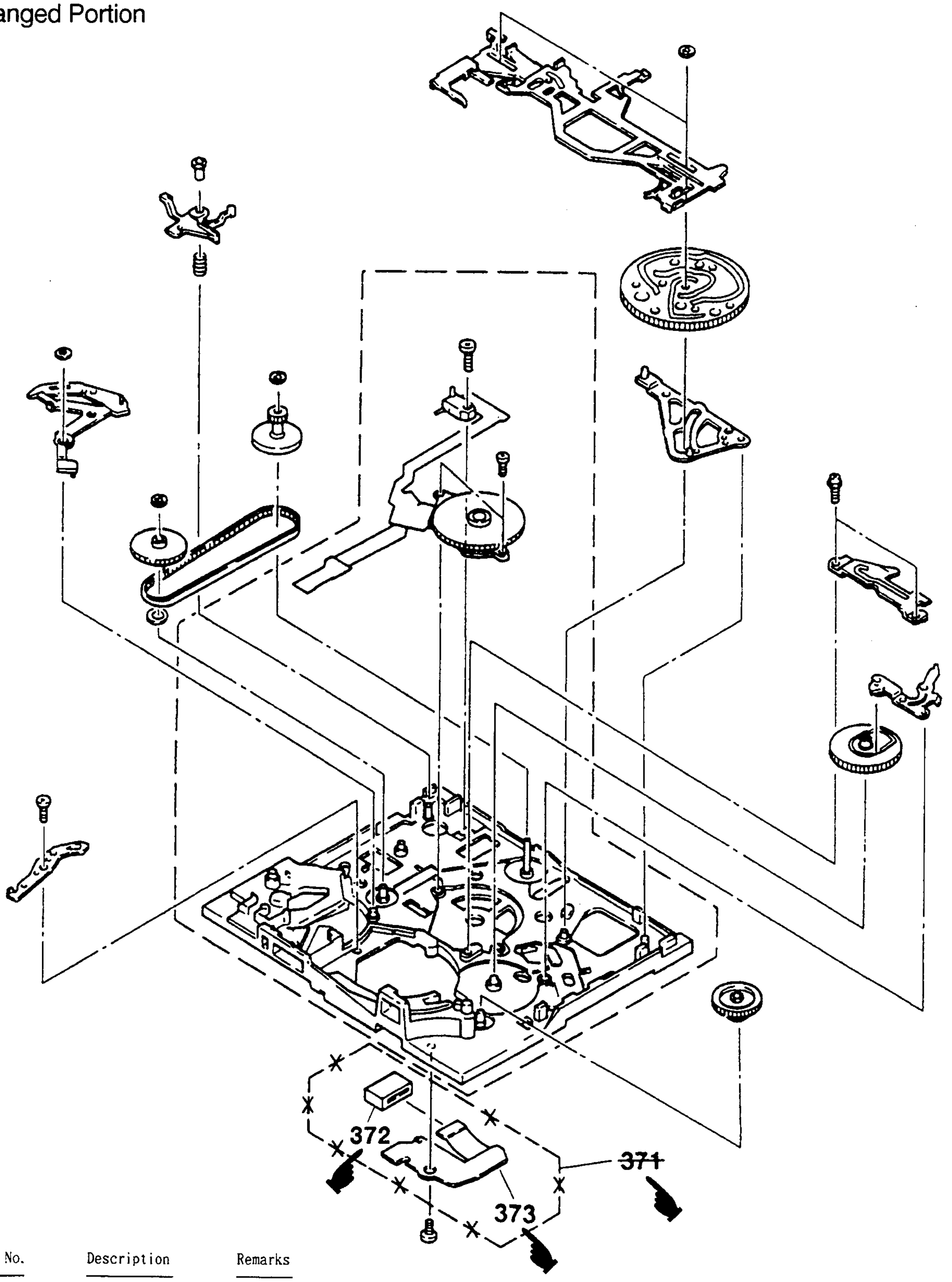
〈CORRECTION〉

P10. 2-4 Service jigs list

		Incorrect		Correct
J-15	FWD B.T adjusting driver	J-6082-182-A	➔	J-6082-187-A

MECHANISM CHASSIS ASSEMBLY (2)

☛ : Changed Portion



Ref.No.	Part No.	Description	Remarks
~~371~~	~~A-7040-311-A~~	~~FP-444 ASSY~~	☛
372	1-691-254-13	CONNECTOR, TRANSLATION 10P	☛
373	1-641-639-13	FP-442 FLEXIBLE BOARD	☛

9-973-199-84

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Personal Video Group

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